Furniture Upholstering

By JOHN W. STEPHENSON

Furniture Upholstering

A PRACTICAL HANDBOOK FOR
THE UPHOLSTERER

PARTS I and II COMPLETE

OVER SEVEN HUNDRED ILLUSTRATIONS WITH
DESCRIPTIVE TEXT

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NEW YORK
CLIFFORD & LAWTON

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TOOLS AND ACCESSORIES

Upholsterer's claw hammer, Fig. 3.

A COMPARISON of the upholsterer's tools used to-day with those in vogue fifty or a hundred years ago indicates a very marked advance in convenience. As in other trades, the proper selection of the various implements which compose a modern kit is an important factor in regard to the quality and quantity of the work which may be accomplished.

The bench is of primary importance. It must be strong, light, and of a practical size. In the general upholstery shop, it must accommodate alike all sizes and kinds of upholstered furniture, and at the same time provide a cushion table and tufting board. On the opposite page we have illustrated a style of bench that is readily adaptable to the various needs of the trade. It is easily cleaned, will hold an ottoman or a davenport with equal facility, and the extension on the

right provides a convenient place for tools. The arms are provided with movable pads for the protection of polished surfaces. A tufting frame with removable boards is placed upon the arms of the bench when used for making cushions or mattresses, the loose boards are placed on the frame when stuffing the cushion, and removed for tufting purposes.

The most important tool, and that most used by the upholsterer, is the hammer. It should

be neither too heavy nor too light, with a medium face, convenient claw, and of the finest temper. The perfect hammer is so balanced that an arc described from the end of the handle will pass through the center of the head from face to claw.

The kit should contain, in addition to the regular upholsterer's hammer, Fig. 10, a small claw hammer for general heavy purposes, similar to Fig. 3. A gimp hammer with a smaller face might be included, but is not necessary for every-day work. The face of the hammer illustrated in Fig. 3 should be from one-half to five-eighths of an inch; that of Figs. 4 and 10 from one-quarter to three-eighths; and the gimp hammer about five-sixteenths.

The shears are next in importance, and may have straight or bent handles. Fig. 9 is a good type of convenient shear. They should be heavy enough to cut easily the various weights of upholstery fabrics, and not too weighty to be handled with ease. These are frequently supplemented by the use of a pair of small pocket shears, which are carried in the pocket of the apron and used for light cutting.

Various kinds of needles are required, governed more or less by the nature of the work in hand. Thus, the diamond or triangular point is best for leather, while the round point is best for cotton and jute fabrics. The eye of the needle should be oblong rather than round, and in selecting them, next to temper, the

strength of the eye is the most important consideration. The complete kit of needles should include one or more two and a-half, four and six-inch circular needles like Fig. 11, and one or more six, eight, ten, twelve and fourteen-inch double-pointed needles, as Figs. 13 and 14. For

Above, webbing stretcher, Fig. 1; on the right, regulator, Fig. 2.

TOOLS AND ACCESSORIES

Circular needle, Fig. 11.

Upholsterer's skewers, Fig. 12.

Ripping chisel, Fig. 8.

some purposes single-pointed needles might be used, but when one is accustomed to their use the double-pointed needle is more convenient for tufting and stitching purposes. A three and four-inch packing needle, as Fig. 5, and a gross of upholsterer's skewers, as Fig. 12, also are necessary. Circular needles are measured from point to point, across the bow, straight needles from tip to tip.

Two kinds of webbing stretchers are necessary, that of Fig. 1 for new work where the whole length is used, and of Fig. 16 for repair work where it is necessary to tighten up the short lengths that have been in use. Usually three sizes of regulators are needed, as Fig. 2, six, eight and ten inches long.

In addition to a yard stick and tape line, the upholsterer requires a steel rule two feet long, as Fig. 6, pivoted for folding in the middle. It should

Trimming shears, Fig. 9.

Upholsterers' hammer, Fig. 10.

be graduated to eighths and sixteenths, and sufficiently flexible to be easily bent into a half circle.

Various kinds of trimming knives are used, but the shape of Fig. 7 is satisfactory for general purposes. A ripping chisel, as Fig. 8, is a very convenient tool, as is also a hardwood mallet, with a face about two and a half inches in diameter.

For special work various tools have been constructed from time to time, such as the wire bender, Fig. 18, a small piece of steel tubing, Fig. 17, used in conjunction with it, a packing stick, Fig. 19, and a good pair of general purpose pliers.

Quality is the prime essential in the selection of all upholstery tools, and, while the outlay required to secure the best may seem considerable, it will be found a better investment than

the purchase of cheaper grades. The tools we have illustrated are not intended to represent the only practical articles of their kind, but only those most generally in use.

Packing needle, Fig. 5.

Single point tufting needle, Fig. 13.

Double point tufting needle, Fig. 14.

Rule, Fig. 6.

Trimming knife, Fig. 7.

REPRESENTATIVE TYPES OF ENGLISH UPHOLSTERING

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SLIP-COVERINGS FOR FURNITURE

(See text on next page.)

SLIP COVERINGS

ONE OF the first requisites in making slip-covers at a profit is to be able to properly estimate the quantity of goods required and the value of the time necessary to make them. For the average chair where the extreme width of the chair is less than the width of

the fabric few measurements are needed, either for estimating or making.

By placing one end of the tape line at the bottom of the chair, A, Fig. 30B, and stretching it to B, then from B to C, from C to D, from D to E and from E to F, adding an inch at every point for seams, we find the quantity that would be required to cover such a chair as Fig. 24, with the exception of the sides. These are calculated by measuring from the floor to the top of the seat or arm, H to G, doubling this quantity and adding it to that required from A, B, C, etc., to F, will give approximately the quantity required to make the slip-cover.

In planning the covers it is better to have the

furniture convenient to the workroom, but as customers frequently require that the covers be fitted in the house, this is not always possible, and necessitates extra fitting, which must be covered in the estimate.

To cover the chair illustrated in Fig. 21, the material is laid over the chair in the same manner as illustrated by the tape line for taking the measurements. Starting with the end of the material at A it is carried across the top of the chair at B C, down the back to D, and on stuff-over furniture like Figs. 22, 23, 26, 27 and 28, about eight inches extra is allowed at D as a tuck-away. Note illustration Fig. 20. For pieces similar to 24, 25 and 30 an ordinary seam allowance is all that will be necessary at this point. The goods are then drawn over to E and down to the floor at F.

Make a pleat at B sufficient for seams, and likewise at C, D and E. The goods are then carefully pinned to the chair sufficiently to prevent it drawing out of shape, and all fullness carefully smoothed to the edges where the seams are to be made. The goods should be carefully squared and smoothed into position before cutting at any of the angles B, C, D or E. After these pleats have been split and carefully pinned, as Fig. 21, the surplus is trimmed away.

This method of lay-

Fig. 30A.

Fig. 30B.

SLIP COVERINGS

ing the goods over the chair in one continuous length can only be followed where the material is plain or has an indefinite reversible pattern; large floral designs must be planned so that the pattern always runs toward the top.

The side-covering, which is cut separately, is also pinned into position, and the seam allowances at the corners, as well as at the angles B, C and E, are carefully trimmed to the desired size, stitched and bound with tape or braid.

The edges at D are pinned so that they may be sewn from the wrong side, and do not require binding. The bottom at A, H and F is turned to a hem about half an inch wide. The cover may be planned to fasten together with hooks and eyes at the back corners, as A, Fig. 30A, or in the center, as B, allowance in either case being made for an overlap of about two inches. For chairs having a

back that is wider at the top than at the bottom, the opening should be in the middle of the back at B; for all the others it may be left on both sides at A. On round edges like the top of Figs. 26 and 28, it is necessary to dispose of the surplus by taking small pleats in the seam. Pleats that are over two inches in length should be stitched down to keep them in position, and if bulky the surplus must be cut away.

After the material has all been carefully pinned in position it is removed from the chair and the seams

A comfortable window seat.

bound with braid or tape. The tuckaway at D and below the arm of stuffed-over pieces (see Fig. 20) may be either sewn together or left separate, and is tucked in between the upholstery when the cover is in place. It is customary on light upholstered pieces, as 24, 25 and 30, to bring the back and front edges together, without the boxing represented by B and C in Fig. 30B, but in all cases where the upholstery is sufficiently thick the boxing should be used, as it tends to keep the cover in better

shape. The matter of making slip-covers, while not difficult, requires considerable care and patience in fitting, in order that the finished cover may fit without drawing or wrinkling at any point.

To estimate for large pieces which require more than one breadth to cover the seat, as Fig. 22, it is only necessary to calculate the extra number of breadths that are required and estimate accordingly.

In estimating the side pieces of Figs. 23, 28 and 30 the measurement is taken from the floor to the topmost point of the side, with seam allowance added.

A favorite arrangement for a drawing-room.

In the reception hall.

CUSHIONS

HERE are so many points about the stuffing of cushions which are not included in the ordinary training of the upholsterer that this branch has grown to be almost a trade or specialty in itself.

Roughly speaking, cushions are divided

into three classes—those having borders or boxing, Fig. 31, those having only a seam where the top and bottom are joined together, Fig. 32, and those that are made on a foundation, Fig. 33. Of these three the first two are usually reversible; the latter is not.

Those made with a border are the most difficult to construct, and are made in various ways, according to the size and wearing quality required. For cheaper cushions where the price is of more importance than wearing quality the cover is usually sewn up and the filling placed directly in it, without any inside casing; all good cushions, however, should be made with an inner casing or cotton form, which is sewn, stuffed and tufted independent of the cover. The casing is sewn up wrong side out, leaving a small opening at one end, through which the filling is inserted.

Make the border for the cotton casing as wide as the thickness required in the finished cushion, and allow a half inch extra on each edge for seams. The top and bottom must have an allowance of a half inch all around for seams, and in addition must be made

from one-half to one and one-half inches per foot longer and wider than the finished size of the cushion. This extra allowance is taken up in the tufting, and varies according as to whether the cushion is soft or hard and shallow or deeply tufted.

After the casing has been made it is turned right side out, with the raw edges inside, and spread out on the marking table with the top and bottom exactly even, and the top is marked for buttons. There is no standard of distance for marking buttons, nor any specified number to be used per foot. The quantity is always a matter of taste, and is governed very largely by the style and size of the cushion.

We illustrate in Figs. 34, 35 and 36 three styles of cushion tufting, either of which is suitable for general purposes. After the points for buttoning have been marked with a pencil on the top side of the cotton case, dip a small brush in waterproof marking ink or stain and touch each point that has been marked, so that the color will penetrate to the bottom layer of cotton, and thus mark the top and bottom uniformly and distinctly.

After this has been done, the case is spread on the stuffing bench (see Fig. 37) and the filling, which has been previously picked apart so that it is light, fluffy and free from lumps, is carried in through the opening and spread evenly and firmly until the cushion is filled.

Put in the material in small quantities, and as each successive handful is placed in position it must be woven and worked into what has been already put in, so that it forms one complete filling when finished. It is impossible to describe the method of weaving

C U S H I O N D E T A I L S

CUSHIONS

filling together except that it is done with a shaking motion from side to side, while the hand presses each additional handful into close contact with what has been already put in place.

Commencing at the farthest end from the opening, fill first the two outside corners until they are nice and plump, then gradually work from each outside corner to the middle until the entire end has been filled. Commencing again at the outside, deposit the first supply immediately behind the corner filling, and then fill toward the middle as before. The dotted lines and numbers in Fig. 38 show the progressive steps in the filling of the ordinary cushion.

Care should be taken as the work progresses to keep the same degree of fulness throughout the entire surface of the cushion, making the edges a little bit harder than the center, and keeping the whole filling as flat and near the finished shape of the cushion as possible. Until the art of stuffing cushions has been mastered there is usually a tendency to allow the filling to round out the case instead of keeping it flat on the top. This is easily overcome by placing the hand over the filling and weaving or pressing it down until it has assumed the desired shape.

After the entire body of the cushion has been filled, the opening is then sewn up and the edges and corners regulated with a cushion regulator (see Fig. 39), using the regulator as a lever to draw the rounding edge of the cushion into a square angle and to pack the filling a little closer along the border. It is not always advisable to regulate the filling too far in advance of the stitching, as it is likely to work back before the stitches can bind it in place.

Where the edges of the finished cushion are required to be extra firm they are stuffed a little harder than usual, and a temporary stitching run through the cushion about six inches from the edge all the way around, as Fig. 44. This stitch keeps the filling from slipping away from the edge, and it is much easier to regulate than when the filling is not confined.

The ordinary side stitch used for holding the filling to the edge is a blind or invisible stitch on top and an ordinary visible stitch on the border. The method of making the blind stitch with a straight double-pointed needle is shown in Fig. 42A, the needle passing up from A and coming out at B, then entering the same hole at B so as to catch the filling inside the cover, is drawn out again at C, the action of the loop being to draw all the filling lying between the points A, B and C toward the edge of the cushion, where it is held in place. A circular needle may be used for side stitching, following the same method as with a straight needle; the circular needle, because of its curve, encloses a larger quantity of the filling, and makes a somewhat harder edge.

It is most important that the corners should be plump as well as square, and for this reason they

should be stuffed a little more firmly than any other part of the cushion and the filling thoroughly drawn into the corners by means of the regulator, where it is held in place by the side stitching.

If the cushion is to have only one row of side stitching the stitches are taken from the center of the border to the top, as Fig. 41, but a much more substantial edge is made by first stitching, as Fig. 42A, and then turning the cushion over and repeating the same stitching on the other side. (See Fig. 42.)

After the sides have been completely stitched around, the basting stitch A, Fig. 44, is removed and the filling is rearranged by means of the regulator to fill out any hollows that may have been caused by drawing the filling to the edges. When the cushion has been regulated, patted and smoothed until it is perfectly even, the loose boards of the tufting table, Fig. 43, are withdrawn and the cushion is tufted according to the marks inked through on the casing before it is filled.

Pass a double-pointed needle down through the cushion, as Fig. 44, then shift the point over a half inch and pass it back up to the top again so that it emerges a half inch from the point at which it first entered. If the stitch or loop is taken diagonally on the warp and weft threads of the cotton, as Fig. 45, the fabric will be less liable to tear than if the stitch is taken parallel with the thread of the fabric.

Sew all of the tufting twines through before tying any of them down. If the cushion is desired harder in the center than towards the edges, the outside tufts are tied down first and the center tufts last. If it is desired that the cushion shall be evenly tufted throughout its entire surface, the tufts are tied down in series, which distribute the pressure evenly over the entire surface. Never start to tie down a cushion at one end and then work gradually to the other end, because if this is done the end that is tied down last will always be harder than the end at which the tufting was commenced.

After the cushion has all been completely side-stitched and tied down in the cotton it is then ready for the cover, which may be put on in a number of different ways as hereafter explained, according to the shape of the cushion and the weight and nature of the covering.

For all cushions that are shaped in curves or that are any form other than square, it is best to put the covering on first and sew the border to it by hand. To measure the amount of cover required for the top of the cushion take a tape line, as Fig. 46, and starting at one end just below the top seam (A, Fig. 46), draw the tape line smoothly and sink it into the first depression made by the tufting twine at B, then to C, to D, and so on to the end, taking care to always force the tape line as low as the tufting twine had drawn the cotton. Repeat the same method to find the width, and the

50A

51

47A

53A

49

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47

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53B

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number of square inches thus shown will be the amount of cover required for the top of the cushion.

After the cover has been cut and seamed up to the proper size, draw a line on the back of it the distance recorded by the tape measure from A to B to indicate the line of the first row of buttons across the end of the cushion. Now, mark the center of this line, as Fig. 47, and press this point into the depression made by the middle end tuft (B, Fig. 47 A). Draw the needle up through the cushion and fabric, thread on the button, as Fig. 48, then pass the needle back down through to the bottom of the cushion and tie the slip knot indicated by the twine in Fig. 49. Place a leather tuft or piece of cotton batting between the twines, draw it tight and secure the knot by one or more half-hitches, as Fig. 50.

After the center button has been tied down, follow the line indicated on the back of the material to the next on the right or left of the middle one and repeat the buttoning until the entire end has been tied down. Then smooth the covering to the next row of buttons, and taking the center or nearest to the center press the goods into the tufting depression and button as formerly (Fig. 50 A). It is absolutely necessary that the warp and weft threads of the goods should lie exactly at right angles on the cushion, and the buttons which are in a line lengthwise of the cushion or transversely, should draw on the same thread of the fabric, so that it will draw smoothly.

The buttons may be sewn in temporarily with a loose stitch, as were the tufting twines indicated in Fig. 44, and the cushion then turned over while the buttons are tied down consecutively. This is really more simple, because the knots are much easier to tie when the cushion is turned over and the tufting frame not in the way. After the buttons have all been pulled in and tied securely, pleats are formed, as Fig. 51, from the outside button out over the edge of the cushion, where they are pinned securely with skewers until sewn down by hand, as Fig. 52.

The border is cut to allow for a seam or the insertion of a small cord as a welt to define the top and bottom edges of the cushion, as Figs. 53 and 53 A, and should also allow below the bottom welt or seam a width of at least one and one-half inches to serve as a facing on the bottom edge of the cushion, to be sewn under, as hereafter explained.

The border, having been first made up, as Fig. 53, is then pinned to the cushion, taking care to keep it perfectly straight with the edge of the same, and is sewn in place with a blind stitch, illustrated in Fig. 53 B, by means of a circular needle. After the top of the border has been sewn in place, the bottom of the border, or rather the small portion of it which goes beneath the cushion, is pinned to the bottom of the cushion, as Fig. 54, and this again is sewn in place by hand, after which the cushion is lined.

This is the simplest method of covering circular, rounding or irregular-shaped cushions with a cover, border and lining. The square cushions may be covered a little differently, though there seems very little saving of time and little, if any, improvement in the appearance of the finished cushion. We give the method, however, for those who wish to use it.

After the goods have been cut, sewn to the proper size and marked, as explained in Fig. 47, instead of pulling in the buttons the goods are drawn into the depressions by the twine and only temporarily sewn, because after the covering has been pinned down around the edge, as Fig. 51, the border is pinned to the cover in such a manner as to hold the pleats rigidly in place. Then the twines which hold the cover to the form are removed, and the top and border as pinned are taken away and the border attached to the covering on the sewing machine; the lining may also be sewn to the bottom of the border, at the same time leaving an opening through which to insert the form.

The border of the cushion will be much improved if it is stiffened by one thickness of buckram, cut so that the edges enter within the seams at the top and bottom welts, indicated in Fig. 53A. This is especially desirable where the fabric is so thin that it falls easily into the serrations caused by side-stitching the cotton body of the cushion.

If it is not important that the pleats of the finished cushion should be exact and symmetrical, which they should be if the above plan is followed, and where pleats in the border will not be distasteful, the covering for the cushion may be sewn up in the form of a case—*i. e.*, cover, borders and lining—of a width and length to fit the cushion form, with one end left open through which the form is inserted. Commencing at the closed end of the cushion this covering is buttoned down progressively, the same method being pursued as described above for the separate cover and border.

After the buttons are all tied down, the fulness which appears in the border and on the edge of the cushion is smoothed into pleats from the outside row of buttons to the edge of the cushion, across the border and underneath. Many of the smaller cushions, such as chair and bench cushions, are made with the top, bottom and border of the same material, so that they can be reversed. When this is the case, buttons are used on both top and bottom of the cushion, knotted, as illustrated in Fig. 55, adding one or two half-hitches around the knotted twine to hold it in place, and then cutting the twine down close, so that both ends are concealed by the button.

Chair or other small cushions similar to Fig. 56 may be made with a cotton form or shaped in the cover. Take a paper pattern of the size of the seat, showing any irregularities which may be necessary in the outline to provide for arms, corners, projections,

DETAILS OF CUSHION MAKING

CUSHIONS

etc. Lay the pattern on the fabric and cut out, allowing one-half inch seam allowance all around in addition to whatever may be necessary as a tufting allowance, figured on the basis of not less than an inch to the foot each way.

The border, which is cut separately, is pinned to the top and bottom covers and stitched in by machine, taking care to keep the corners at A, B, C, D, E, etc., perfectly square, and leaving an opening at the back of the cushion through which the filling is to be inserted. It is well to make the cotton case rather larger than is desired, so that it will fill the cover, which is smaller, neatly and well. If desired, these cushions can be made in the cover without using an inner cotton casing, and when this is done special care should be exercised in order to secure a correct fit.

There are other ways of filling cushions in addition to that outlined in Fig. 37, one of the most popular consisting of "laying" the filling as distinguished from "stuffing," which we have already explained. To make "laid" cushions the border is attached to the bottom of the form to make a shallow box of which the entire top is open (Fig. 57). The corners are held in an upright position by means of long skewers or needles, which are inserted in the tufting table, A, Fig. 57, and the filling, which has been previously picked until free from lumps, is now spread into this cotton box in successive layers, taking care to weave the whole filling into one compact mass. After a sufficient quantity has been placed in position, the cover is pinned to the top edge of the border all around, as illustrated in Fig. 58, and sewn in place, after which it is side-stitched and tufted in the usual way.

The advantages claimed for this method are that a given quantity of filling can be more evenly distrib-

uted throughout the entire surface of the cushion, and that the material can be better woven together than is possible with the "stuffing" method. This, however, is a matter for personal determination, and we give the method for those who desire to use it.

The buttons of a cushion serve a two-fold purpose, that of binding the filling in place and ornamenting the surface of the cushion. In some cases, however, it is desirable that cushions should be made which will supply all the features of the ordinary cushion without a buttoned surface. One of the best methods of accomplishing this is to prepare the cotton form in the ordinary way, either stuffed or laid, as already explained, making the edges all around somewhat harder than is ordinarily the case. This form is sewn through and through with long stitches, as Fig. 59, keeping the stitches a short distance from the edges all around, so that plenty of filling will remain free to regulate to the edge.

Stitch the edge with a circular needle, as illustrated in Fig. 60, using two rows of stitches for the top of the cushion and two rows for the bottom. The first stitch, A, Fig. 61, is visible only on the edge, and does not catch the cover at B, C, D, etc., as indicated by the dotted line. The second stitch is visible on both top and border, is shorter than the first one, and is intended to draw the edge of the cushion into a compact solid form, as indicated in the illustration. The stitched cushion form is now treated as a foundation for a laid cushion, another filling is woven together under loose bridling twines, A, Fig. 62, then a light top filling placed over this and the top cover of the form sewn to the edge of the cushion, as illustrated in Fig. 63, after which the bottom is treated in the same way. A cushion made in this way provides a plain surface, and will retain its shape and wearing qualities under the most severe usage.

33

64

FOUNDATION

65

65A

66

66A

67

67A

The Turkish edge cushion shown in Fig. 64 is a form now coming into general use for yacht, church and lodge cushions. It may be made by the stuffing method, as Fig. 37, or by the laying process, as Fig. 58. It is side-stitched in the ordinary way, the same as other cushions, except that the upper edge is regulated into a rounding form instead of square.

Cushions that are upholstered on a foundation, as Fig. 33, may be made considerably harder than is possible in any other way, and lend themselves to a variety of fancy tufting that is not possible with the ordinary cushion.

Very shallow cushion pads, such as are used in the seats and backs of very light chairs, may be made on a foundation of stiff cardboard or buckram, but for larger cushions a more solid foundation is preferable. Quarter-inch lumber clinch-nailed together two-ply thick, so that the grain of each is running at right angles to the other, makes a satisfactory foundation for cushions of this character. It can be band-sawed to any shape, and is not liable to either warp or split.

There are three styles of tufting commonly used for built-up cushions, *i. e.*, biscuit, bun and diamond tufting, biscuit tufting usually being the most shallow, and also the most closely tufted of the three. After the foundation has been prepared, find the center each way and draw lines as dotted lines 1—1, 2—2, at intervals of one and one-half the distance desired between the buttons of the finished cushion. (Fig. 65.) Rule diagonal lines, as A, B, C, to cut through the intersections of the dotted lines, and mark these diagonal lines sufficiently heavy to be legible when tufting, as the smaller squares enclosed by the diagonal lines outline the size of the tufts, and the intersections of the diagonals mark the points where holes are to be bored for the buttons. (See Fig. 65.) When all the lines have been drawn the foundation is

ready for upholstering, but the cover must also be marked for buttoning.

To ascertain the size of the covering needed, count the number of squares diagonally from one extremity to the other; thus from C to C, Fig. 65, numbers ten squares, and ten also from A to A; now take the size of the dotted squares first marked on Fig. 65 (three inches), and multiply the number of diagonal squares by the size of the dotted squares, which gives us the size of the covering as 30 by 30 inches; add two inches all around for tacking, and a piece of covering 34 by 34 will be the size required.

For spaces such as Fig. 65, where the cushion is longer than wide, it is possible to economize in covering by joining two pieces together on the center line of tufting, B—B; take the width from the lower right-hand C to the upper B, nine squares, and the number from B—B to A, upper right-hand corner, five squares, and multiply each by three inches, as before, and we find that two pieces 27 by 15 inches, with tack allowance added, will be sufficient to cover the space thus divided by line B—B.

The covering is turned face downward upon the table and divided into the requisite number of three-inch squares, leaving the tack allowance beyond the outside lines, and keeping the lines parallel with the edges of the material, similar to Fig. 66A.

Attach the center mark of the lowest line on your material to X, the lowest button mark on your tufting surface on line A, Fig. 65, and temporarily tack the next marks on the bottom line at X—X, Fig. 65A. Stuff the fullness thus allowed between your button and X—X, and then put in button B, as Fig. 65A; the space between A—B and X forms a triangular pocket of fabric, which is stuffed up plumply and the next button pulled into place by following the marks on cover and tufting surface.

The rest of the tufting is now a repetition of this

procedure, stuffing up the three-corned pocket, pulling in the fourth button to complete the square, and forming the surplus from button to button into a straight pleat. When all filled the edges are stuffed up plumply and tacked underneath the wood all around, the surplus fullness around the edge being formed into pleats running outward from the outside row of buttons, as Fig. 65A.

This is by no means an easy task for a novice, but patience and perseverance will accomplish the result, and the method of square-marking for the covering and diagonals intersecting similar sized squares on the foundation will give the proper allowance of fullness for all sizes and nearly all coverings.

Square or bun tufting is marked as Fig. 66, dividing the space into three-inch squares (or larger, if desired), and the covering marked also into squares as Fig. 66A from one to one and a-half inches larger than those on the surface of the article. Thus, for three-inch squares, rule your cover into four and one-half-inch squares and add tacking allowance.

The size of the covering can easily be ascertained, as you need the same number of four and one-half-inch squares of covering as there are three-inch squares marked out for tufting. Put in the entire bottom row of buttons and the first one of the next row Fig. 66, thus forming the triangular pockets, which are stuffed as previously explained for biscuit tufting.

Diamond tufting is made in a slightly different way, but the principle is the same. Rule the cross lines 1—2—3—4, as Fig. 67, line 3, say three inches from the bottom, line 2, six inches above line 3, and line 1 three inches higher again. Divide lines 1, 2, 3 and 4 into three-inch spaces, as shown on line 1, A—B—C, etc.; rule from B on line 2 to A on line 3, and also to C on line 3; rule from C on line 2 to B and D on line 3, and also from A on line 2 to B on line 3, continuing this until the surface is all marked, as Fig. 67A. This will give you a row of intersecting diagonal lines between lines 2 and 3, and by following the intersections, marks the diamonds for buttons.

To measure the space for covering, measure from A to B to C to D, and so on to G, adding one and a-half inches to the distance between each point for fullness. Measure from 4 to 3 to 2 to 1 in the same way, adding one and a-half inches to each space, so that

Fig. 68. See text above.

a panel the size of 67, which measures 12 by 18 inches, requires a piece of covering 18 by 27 inches, with an allowance of two inches all around for tacking (22 by 31). Mark the covering, as Fig. 67A, which shows the one and a-half inches added to the spaces between the upright lines and also to the spaces between the cross lines.

Put in the first row of buttons and draw the bottom edge of the goods, which lies directly in line with each button, straight down, and tack it temporarily there. This will form a series of pipes all across the bottom; stuff these evenly and plumply; then, commencing in the center, stuff up all the space between the first row of buttons and the second line; pull the cover down over this by pulling the button mark on the cover down to the button mark on the line, and put in the button, forming the surplus material diagonally from button to button into a pleat, as illustrated, Fig. 67.

Continue this row and the rest in like manner, folding the pleats downward and facing each other in pairs, as indicated by arrows.

Finish the top with a row of pipes similar to the bottom, stuff up all the edges and tack them, drawing all the surplus fullness into pleats from each button of the outside rows, and rounding the edges down to the place where finished off by tacking.

The pleats for biscuit, bun or diamond-tufted cushions are always turned, so that the wear to which the cushion will be subjected will smooth the pleats into shape, instead of being in opposition to the way the goods are turned.

There is an easy method of imitating this kind of upholstered cushion for cheap purposes. After the foundation has been bored for buttoning, a layer of the stuffing material is spread over it and tacked in place by driving large tacks down through it at intervals of about six to eighteen inches. Other layers of stuffing are laid upon this until the desired thickness is obtained.

The covering is then tacked loosely over the stuffing, as Fig. 68, allowing plenty of fullness for the buttons. After this has been done, commencing at one end, press down the goods directly over the first hole made for buttoning, and with the regulator draw away all of the filling until the finger presses the material right down to the foundation, after which the button is pulled into place. This operation is repeated at each point marked for buttons, taking care to keep the thread of the cover straight from button to button and not allowing any more fullness than the stuffing will fill. After the buttons are all pulled in, the wrinkles from button to button are smoothed into pleats, and the cushion regulated into symmetrical form. This plan is only used for very cheap cushions where the covering is not of such a nature that the necessary and constant use of the regulator will cause permanent injury.

MATTRESSES

MATTRESSES are made by either the stuffing or laying process, and regulated, side-stitched and tufted in the same manner as cushions, except that instead of buttons, leather tufts or bunches of cotton batting are used to prevent the twine from

pulling through the ticking. To cut the ticking for a regular mattress four feet six inches wide by six feet four inches long, add five and one-half inches to length and width for borders, and also one inch to the foot each way for fullness, thus: 4 ft. 6 in. + $4\frac{1}{2}$ in. (fullness) + $5\frac{1}{2}$ in. (border)—total, five feet four inches wide; 6 ft. 4 in. + $6\frac{1}{2}$ in. + $5\frac{1}{2}$ in.—total, seven feet four inches long.

Cut off four breadths of ticking seven feet four inches long and sew them together double width in pairs, each pair thus sewed making one side of the tick, with border for one side and one end. Tear off any surplus width, then fold down five and one-half inches all across the end of one of these strips and run a stitch through the fold one-quarter inch in from the edge (Fig. 68A). Next, turn down the same distance, five and one-half inches, on the left-hand edge and

stitch this also. This is to serve as the bottom of the tick. Now, take the other double-width piece of ticking, make the five and one-half inch fold on the end as before, and fold over and stitch the right-hand edge to form the right-hand border and the top of the tick. These two pieces are now joined together, as indicated in Fig. 69, and stitched all around except for a small opening left at one end for filling. The corners also are stitched together after having been folded in square box shape (Fig. 68A), and all of the border seams bound with mattress binding. Expert mattress sewers always put on the binding and sew the folded edges with one operation, a knack easily acquired with practice.

After the mattress has been completely filled, taking care to make the center slightly harder than the sides, the edges of the top side are regulated and side-stitched in a manner similar to that explained in cushion making, as Fig. 42A. Before the mattress is turned over the loose boards of the tufting-table are now withdrawn and all of the tufting twine sewn

M A T T R E S S M A K I N G D E T A I L S

(See text on opposite page.)

M A T T R E S S E S

in, as previously explained for Figs. 44 and 59, which see. Now turn the mattress over and regulate the other edges and side-stitch as before.

A much more durable edge than the ordinary side stitching of Figs. 42 and 42A is made by stitching after the manner of Figs. 60 and 61, omitting the extra corner stitches. Of these stitches the first two, A—A, Fig. 70, show on the top as well as on the border, while those of B—B show on the border only. The stitches on the border, A and B, are taken in line with the edge of the mattress, as Fig. 70. These stitches may be made with either a circular or straight needle, according to the importance of the work in hand, the circular needle making the most substantial edge, but taking more time.

The outside rows of tufts should be five inches from the edge, and are usually four long rows of six tufts each, with three short rows of five tufts each between. This makes the diamond tufting, as Fig. 34, and is considered much softer than the square tufting of Fig. 36, the latter requiring seven rows of ten tufts each. If the tick is marked for tufts before stuffing, as explained in the method of marking cushions, there will be less difficulty in keeping the tufts exactly opposite.

To tie down the tufts, commence with the outside row and follow around the mattress row after row, so that the center is tied down last. This keeps crowding the filling toward the center of the mattress, and makes that part, which gets the greatest wear, harder than the rest.

A regular size mattress requires from nine to ten yards of ticking and an average of sixteen to seventeen yards of binding.

Mattresses that are made in two parts will remain elastic and wear longer than if made in one piece. The large part should be made the width of the bed square, so that it can be turned around from time to time and the wear evenly distributed over its entire surface. The smaller piece may also be turned occasionally, but as it is usually only a third of the entire mattress the bulk of the wear comes on the larger piece.

Various kinds of mattress and cushion fillings are used according to the value and wearing quality desired, and range from excelsior, the cheapest, up to the finest grades of white curled hair drawings. Grading down from the most expensive there are several less expensive grades of hair, then moss, cotton felt, silk floss or kapok, African fiber, sea grass (marsh hay), sea moss and excelsior. All of the coarser materials are softened by a layer of tow bats, cotton bats, wool or wool flock laid between the filling and the ticking, and though the use of batting is not necessary for moss or hair fillings, a more luxurious mattress can be made by its use.

Mattresses should be made over every few years to keep them plump and free from dust and moths,

and usually require an additional three or four pounds of filling each time remade.

In estimating on mattress contracts, as a rule each item of ticking and filling is fully and clearly specified. When this is done, estimating the cost is a comparatively easy matter. After learning the size and weight of the mattress, allow five pounds for ticking, and estimate the difference as hair or filling on a cost per pound basis. Add the cost of ticking, allowing ten yards for the regular double bed one-piece mattress, or twelve yards for the double-bed two-piece mattress. Allow a sufficient sum to cover labor, and add to this total your percentage of profit. A single-bed mattress will average twenty per cent. less than for double-bed size.

Regular size double-bed mattresses weigh on the average forty pounds each, thirty-five pounds of filling and five pounds of ticking. West of the Alleghanies the forty-pound hair mattress is considered sufficiently thick, though in the East fifty-pound mattresses are quite generally used. The proprietors of hotels and institutions usually consider it good economy to invest in heavier mattresses. These rules, of course, apply only to the hair cushion used in conjunction with the customary woven wire or spiral spring mattress, and are not intended to cover the specifications for the upholstered double-deck or Turkish mattress, which is explained later.

SPRINGING UP

THE first principle to master in furniture upholstery is technically termed *springing up*, and consists of applying the webbing to the bottom of the chair, sewing in and tying down the springs and covering the same with canvas.

Webbing for upholstering purposes is divided into many grades and widths, according to the various requirements. There are, however, only two styles in general use, one about two inches wide and the other about three and a-half inches, the latter being the standard width and the most frequently used of all.

All spring-seated chairs are not webbed alike, even though the seats themselves may be all the same size. For purposes of explanation we will divide the different styles of spring-seated pieces into three different sections, viz., those having an unobstructed under surface, as Fig. 70; those with a partially obstructed surface, as Fig. 71, and those altogether obstructed, as Fig. 72. By obstructed and unobstructed we mean those which permit of the free use of the ordinary form of webbing stretcher, those which permit of its partial use and those which do not permit of its use at all.

Fig. 70 having a seat twenty-four inches by twenty-four inches is placed on the bench, which has been described in a previous chapter, in the position illustrated by Fig. 73 and is webbed first from front to back and then across, placing three strands each way interwoven, as illustrated in Fig. 72. It is a common practice by many to turn the end of the webbing underneath, as Fig. 74A. This, however, though neater, is not as substantial as if the end were turned out, as Fig. 74B.

Having placed the chair in position, open the roll of webbing by releasing both the outside end and also the center end of the roll, which gives two ends to work with, attach first the two outside strands A—A, Fig. 73, using good ten-ounce upholsterers' tacks. Place the webbing stretcher in position and stretch,

as indicated in Fig. 73A. The single strand B, which completes the three, can now be easily centered between these two in order to get the proper relative distances, after which the other three strands are put across the chair in the same way. For upholstered pieces which have the ordinary hard or stitched edge, described later, the springs are placed about three inches from the frame all around, therefore the webbing is distributed so that each outside intersection, 1, 2, 3 and 4, Fig. 72, is also three inches from the frame.

Partially obstructed surfaces, as No. 71, do not provide the same flat surface for all strands alike, as for instance, strands 1 and 2 are attached to upright pieces of wood on one end, while strand 6 is tacked to upright surfaces at both ends. Ends 1 and 2 are tacked practically in the same manner as described for chair Fig. 70, except that instead of driving the tacks perpendicularly at right angles with the webbing the ends are turned over and the tacks driven horizontally or in line with the direction in which the webbing is stretched, Fig. 71A. The first end of strand 6 is attached in the same way, but the second end cannot be stretched in any way by the webbing stretcher and must be stretched entirely by hand. After the first end is fastened the webbing is pulled across the chair as tight as the hand can draw it and the first tack inserted about half an inch from the wood, as Fig. 76. Then by entering the point of the tack in the wood and driving it home the tack itself draws the webbing as it is driven in and stretches it that additional half inch. This is done all the way across the webbing, care being taken not to cut or break the fabric as the tacks are driven home, after which the end is cut and turned over the same as if the stretcher had been used.

Pieces similar to the ottoman, Fig. 72, in which the entire webbing surface is obscured, are webbed altogether in this manner. After the webbing has been stretched across and tacked in place, as Fig. 73, the surplus is trimmed off, allowing about one inch extra, which is turned over with a double fold and also tacked down flat, inserting the tacks so that they come between the heads of those which hold the webbing in place, as Fig. 70A.

As the springs of spring-edged work must come

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DETAILS OF SPRINGING UP

(See text on opposite page.)

close up to the frame where the spring edge is to be formed, it is necessary that the webbing should also come to the edge of the frame on those sides which are to have the spring edge. Thus the armchair bottom illustrated in Fig. 71 shows the first cross web right close up to the front rail, while the bottom of the small chair, Fig. 70, shows a strand close to the rail on both sides and also in the front, as the spring edge of a small chair runs all around both sides and across the front.

Under ordinary circumstances, it is not wise to have more space than two inches between the different strands of webbing, although, of course, the price of the article determines the amount of webbing and other supplies which can properly be expended on it. Too much importance cannot be attached to the proper stretching of the webbing and also to its proper attaching to the frame, because on these two points depend the durability of the entire seat.

The tacks should be carefully spaced in the middle of the rail and the size should be chosen in proportion to the strength of the wood in which they are to be driven, varying from six to twelve ounce as may be required.

The strain exerted in stretching the webbing should also be properly gauged to the strength of the chair frame and to the elasticity of the webbing.

The entire elasticity of the webbing should not be exhausted in the stretching so that it is at the breaking point, but it should be capable of giving slightly under the pressure of use, while, at the same time, so taut that it will not bulge with the tying down of the springs. It is this elasticity of webbing which makes it preferred by many to the unyielding nature of wood or steel substitutes.

In the cheaper classes of upholstered furniture, solid bottoms of thin lumber or wood-slat bottoms are frequently used instead of webbing, and in recent years metal strands of various kinds have been extensively advocated as a more durable and cleanly substitute for either. Slat or wire strands, when used, are

placed in the exact position to catch the different rows of springs that will be required. The wood slats, however, run only one way across the opening, while the wire supports are placed both ways in the same manner as webbing.

We have previously described the different ways of webbing furniture, as required for spring or stitched edges. The illustrations of Figs. 77, 78, 79, 80, 81, 83, 84 and 85 illustrate more clearly the positions of the webbing in relation to the springs.

Figs. 77, 79, 80, 82 and 84, representing spring-edged arm-chairs, 87 and 88 represent the positions of springs for stitched edged arm-chairs; 78, 85 and 89 represent spring-edged small chairs, and 81 and 83 show the placing of springs in small chairs for stitched edges.

As will be seen by the positions of the circles in these illustrations, each strand of webbing, indicated by the dotted lines, is placed so that a row of springs will set fairly upon it. The circles also indicate in the different illustrations the number of springs required for different arrangements, using fewer or more as the style and value of the piece requires.

In Figs. 82, 89, 92 and 93 the small circles on the frame of the chair indicate small special springs, used, as will hereafter be described, for spring-edge work. Figs. 90 and 91 show the position of springs and webbing for stitched-edged lounges, while 92, 93, 94 and 95 show the position of springs for spring-edge work.

Two styles of metal webbing, or webbing substitutes, are shown in Figs. 96, 97 and 98; the webbing shown in Fig. 96 consists of a perforated, flat steel band about three inches wide, which is fastened to the bottom of the chair by driving nails through the perforations. The wire strand shown in Figs. 97, 98 and 99, as will be readily seen, is made in special lengths to suit the various pieces of furniture, each end of the strand being sharpened to a staple point to be driven into the top of the frame.

The last-mentioned method of applying springs requires a specially constructed spring having coils of

Fig. 99.

Fig. 77C.

SPRINGING UP

gradually decreasing diameters from top to bottom, Fig. 99. In ordinary use, apart from this special spring, there are at most about five other kinds of regular spiral upholstery springs.

Fig. 101 shows the ordinary style of spring and Fig. 102 shows what is known as a tied spring, in which the end of the wire is given a couple of turns around the next coil. Fig. 103 is made for spring edges, the top coil having been turned particularly large and flattened on one side to rest squarely against the wire. Fig. 104 is specially turned for wood or slat bottoms. Ordinary springs, such as Figs. 102 or 101, may also be used for spring edges, but when the latter is used, instead of turning down both points of the spring, one point is turned outward and downward, to hook under the coil, as shown in Fig. 100. Fig. 105 shows the style of spring used on the frame for spring edges in Figs. 82, 89, 92 and 93.

It is well to turn down the points of the wire on all springs that are not tied, to prevent the wire from working through the webbing or the canvas. A flat steel plate, having two or more perforations, so that one will project beyond the bench when the plate is fastened in place, can be used for this purpose, as illustrated in Fig. 77C.

To attach the springs to the webbing, they are first placed in position and then sewn, as indicated in Figs. 77A and 77B, using the packing needle already described (Fig. 5) and stitching twine. The stitches of each spring, usually three in number, are so planned that the last stitch taken will be at the nearest point to the next spring (see solid line, Fig. 77A), an important consideration in the economy of both time and twine.

To attach springs to wood bottoms, two methods are used, as illustrated in Figs. 106 and 107, the former using wire blind staples, and the latter ordinary six to ten ounce tacks and small pieces of webbing or heavy canvas; either of these methods requires that something in the way of a silencer should be placed below the unfastened coils to prevent rattling when

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77A

the wire strikes the wood. For solid-bottomed furniture a small pad of tow can be twisted in under the spring and tacked by forcing a large tack through it into the wood, as Fig. 106A, or for slat-bottomed furniture, a piece of carpet or other heavy fabric fastened beneath the spring, as Fig. 107A, will be effective.

The method of attaching springs to the metal webbing of Fig. 96 can be readily seen from the illustrations, and consists simply of threading the bottom coil over and under each strand until all four sides of the coil are held in position. This same method of twisting the spring into position is also used with ordinary webbing, but is not at all satisfactory and only employed on the very cheapest work.

The method of attaching the spring to corrugated wire supports is clearly shown in Fig. 99, and is accomplished by twisting the spring around so that the lower coil will pass over, then under the different strands, somewhat like the method described for 96. Fig. 99A shows the appearance of a chair entirely sprung up by the latter method. Fig. 97 shows the use of small edge springs, which are attached to the same corrugated wire that forms the foundation for the other springs. In addition to the special devices above mentioned, there are also a number of other methods in use of a more or less patented character, but those illustrated herewith comprise the most practical methods in general use.

Special-shaped furniture pieces, such as the cozy corner of Fig. 108, or the conversation chair 109, are webbed in much the same manner as ordinary straight-edge pieces, taking care always to cross the webbing strands at right angles to each other as near as the shape of the frame will permit. Circular frames are naturally more difficult to web because the webbing stretcher has not always a flat bearing upon which to rest, a little practice, however, will enable the workman to manipulate the stretcher at almost any desired angle. It will be noticed that in Figs. 108 and 109 the webbing is disposed with regard to the position the springs are to occupy rather than following absolutely the shape of the frame.

With very few exceptions webbing for springs is

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99A

SPRINGING UP

stretched perfectly flat each way across the opening, but in some cases it is necessary that the bottom of the seat formed by the webbing should follow the contour of the frame in a semi-convex form, as, for instance, in the Cleopatra or scroll chair, Fig. 110. In this chair the back rail, as will be noticed, is considerably below the level of the side rails at the lowest point. In order to preserve the shape of the bottom therefore the strands which cross from side to side are put on first and stretched very tightly. Then the strands which run from front to back are threaded through the cross strands and not stretched any more than sufficient to take up the slack and at the same time follow the outline of the bottom of the chair.

The method of placing the springs in circular-framed furniture is clearly shown in Figs. 108 and 109 for stitched edges and 108A for spring edges, the number being increased or diminished according to the wearing quality desired.

The standard sizes of upholstery springs in general use are four, six, eight, ten and twelve-inch, according to the depth of the frame and the height of the seat. It frequently occurs, however, that small springs are needed when none but large ones are in stock.

To reduce the height of a spring a common practice among upholsterers is to bend down one or two of the coils at each end so that the whole spring is considerably shortened, as will be seen in Figs. 111 and 111A. This, however, is never as satisfactory as it would be to use the proper size springs, for the reason that in bending down the end coils, which are larger and consequently more elastic, only the stiffest part of the spring is left for use, so that while the spring is shorter it is also much harder or more rigid than a perfect spring of the proper height.

It is also frequently necessary to soften regular springs when found too stiff to be used for certain purposes. This is done by enlarging the diameter of two or three of the coils at each end of the spring, as Fig. 112, commencing at the end of the spring and opening out the coils all the way round until the desired flexibility is obtained.

Of the sizes above mentioned the four and six-inch springs are used for very shallow seats, such as dining chairs, couches and very cheap parlor goods. Eight and ten inch are used principally for good upholstered furniture of a semi-heavy character, and ten and twelve inch for the largest show wood and stuffed-over pieces. For the arms and backs of chairs and heads of lounges much softer springs called pillow springs are used. These are about six inches high and are made of smaller gauge wire. Chair arms that are intended to be sprung up are constructed to allow a flat surface on which the springs may rest.

Spring-backed chairs will be fully covered later and need not here be dwelt upon, as will also the method

of forming spring-edged arms and the method of placing pillow springs in lounge heads.

Next to the proper webbing of the foundation and the proper placing of the springs the tying down is of the utmost importance and requires considerable practice to acquire the proper knack of working to advantage. By referring to the illustrations 115, 116, 117, 118, 119, 120, 121 and 122, which show the twines numbered according to their turn in being tied, it will be seen that it is usual to tie first all rows from front to back, afterwards crossing them with the twines which run from side to side.

Having measured the length of spring twine required to run from the back of the frame 1, Fig. 115A, across the springs of that row to X, allowing about two inches for every spring crossed, the length required for each row would be ascertained. These are cut off and, unless the springs are to be back tied, which requires at least twelve inches extra twine, a knot is tied in the end of each of the twines through which a ten or twelve-ounce tack is driven into the frame at 2, Fig. 115A, directly in line with the center of the springs of that row. Now draw the strand of twine tight over the nearest point of the top coil of the first spring from the back, taking a complete turn around the coil; then draw the twine over the top of the spring, as Fig. 115B, pull down tight until the spring has been reduced to the height desired. If the spring is not held so that pressure will cause it to descend in a straight perpendicular line the turn around the coil will permit it to be shifted forward or backward until this is possible; then grasping the twine where it circles the wire, to keep it from slipping a knot is tied, as Fig. 115B. Cross the spring to the opposite side of the same coil and knot as before; then draw the twine across the second spring of the row and pressing it down into position to get the perpendicular as before repeat the tying until all of the springs have been knotted into the twine. Now, drive a large tack, ten or twelve ounce, part way into the frame. Press the springs down while at the same time the twine is made to take a turn around the tack, by pressing the springs

108A

108

116

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115A

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122

and keeping the end of the twine taut the springs may be compressed to the desired level, or by releasing the end of the twine can be permitted to rise as desired. As soon as the proper height has been reached this tack is driven home together with another to bind the twine in place. It is of the utmost importance that each spring should be tied perfectly perpendicular, as any tendency to lean, however slight, destroys the perfection of the work.

Fig. 115C shows a side view of a row of three springs improperly tied in, with the springs all leaning backward. In Fig. 115D there is the same fault, with the leaning toward the front. Fig. 115B shows the same row properly tied so that the play of every spring will be perfectly perpendicular. After all of the rows from front to back have been tied in this manner, taking care to keep them all the same height, the same plan is repeated from side to side, so that each spring is tied four-square. For very expensive furniture the springs are sometimes tied diagonally also, as indicated by the dotted lines of Fig. 116. But these are considered superfluous for ordinary furniture. The springs of Figs. 81, 83 and 88 previously illustrated are also tied down in this manner, as are those of Figs. 90, 91, 108 and 109, commencing with twine No. 1 and following the method indicated, Nos. 2, 3, 4, etc., until all are tied down.

The correct height for tying down springs is governed altogether by the degree of resiliency required in the finished seat—the less they are compressed in the tying the greater resiliency, and vice versa. The tops of the springs should never, except in very extreme cases, be less than two inches above the top of the frame, and as the degree of resiliency can never be more than that permitted by the twine the higher the tops of the springs are above the frame the more resilient the seat. The mistake is sometimes made by inexperienced workmen of tying the springs too low, so that there is not sufficient give to the seat before the strain comes on the tying twines, with the result that there is very little resiliency, and the twines soon break with the strain. Figs. 115B and 115E, illustrating the maximum resiliency of correct and incorrect tying, show clearly the dangers to avoid.

Pad-seat furniture (*i. e.*, that which is constructed without a regular rail for upholstering purposes, as Figs. 123 and 123F) is sprung up in a manner similar to ordinary spring-seat furniture. Many, but not all, of these frames are provided with a rabbeted or depressed edge, as 123B, which permits all of the tacking, including the gimp, to lie below the polished surface of the frame. In some cases it is desirable to have a greater area of upholstering than this provides. In this case the frame is marked by means of a pair of dividers set to govern the width desired (usually one or one and one-half inches), so that one point will scratch the line that the upholstering is to follow on the surface of the seat, while the other point, which is covered with leather to protect the finish, is made to follow the outer edge, as 123C.

There is usually an objection to webbing dining chairs on the bottom of the rail, A—A, Fig. 123E, not only because rungs or spindles sometimes interfere with the hammer, but because the slightest sag of the webbing becomes visible and spoils the appearance of the chair. Where it is possible to apply the webbing to the bottom of the rail, however, a much better seat results, because deeper springs may be used. Where it is not possible to web on the rail the webbing must be stretched by hand and tacked to the bottom of the seat frame, as Fig. 123A and 123F, or where the seat frame is held to the rail by screws it is sometimes possible to loosen these screws and wedge the frame up, as Fig. 123E, so that the webbing may be stretched in the space forced open between the rail and the seat. The corrugated steel spring supports illustrated in Fig. 98 provide an admirable method of overcoming the difficulties connected with this style of seat.

The springs of pad-seat dining chairs are tied down to within about an inch and a half (seldom more) of the top of the frame so that the upholstering as a whole will not make a pad more than two and a half inches above the frame at its highest central point.

Slip seats for diners are sometimes awkward to handle for lack of an adequate method of holding them solid while being upholstered. A simple frame device eighteen inches wide by four feet long, constructed of one by three-inch wood strips, to fit the bench top, as Fig. 124, provides a simple and effective clamp or vise

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123F

123A

123C

123B

130

123E

123D

129

128

127D

127C

127

127A

127B

129A

131

127E

126

124

SPRINGING UP

for holding these frames in place, the open center of the frame permitting easy access to the bottom of the seat for sewing springs to webbing, double stuffing, tufting, etc. The two foreward clamps of this frame slide in grooves and are adjustable to the exact size of the seat. The back clamp is adjustable only as to thickness.

Slip-seat frames like Fig. 125 are always upholstered as thinly as possible, either with or without springs. All other dining chairs having the ordinary show-wood or stuff-over rails are upholstered like other spring-seat furniture.

A convenient rocker block for holding a platform rocker in a rigid position for working is shown in Fig. 130. It can be readily constructed out of a piece of soft wood, 1 x 3 x 12 inches, cut as illustrated. Lounge heads are sprung up as Fig. 129 for stitched edges and 129A for spring edges, the springs being usually either very soft standard gauge springs or specially constructed pillow springs.

Spring-edged furniture, as already partially illustrated, requires always more springs than for ordinary stitched-edged, because the springs must be disposed to provide one row close up to the frame wherever the spring-edge is to be formed. When placing unknotted springs always make sure that the top end of the wire will be bound to the next coil by the twine which ties down the spring, as Fig. 126.

After the springs have been all sewn in place to the webbing, as Figs. 77, 79, 80, 85, 78, 94, 95, a piece of webbing is tacked over the inner edge of the rail to prevent the spring from rattling as it strikes the rail. It covers from the top front edge down nearly to the bottom of the rail as A, Fig. 127E. The length of the twine required to tie the springs down is found by measuring from A, Fig. 127, over the springs to B, doubling this length for ordinary spring-edge work and adding eighteen inches if the spring is to be back tied, as Fig. 127A. If the back spring is not to be back tied a knot, Fig. 131, is formed in the end of the twine, then tacked to the back rail, and all the springs in that row except the front spring knotted into the twine, as already explained for Figs. 115A, B, etc. When the top coil of the front spring is reached, instead of knotting, one turn of the twine is taken around the coil, and then instead of crossing the top coil, the twine is dropped to the front of the third or fourth coil down, as shown in Fig. 127B; a tack is driven into the front rail, the twine passed around it and the springs depressed to the desired height and fastened solid, as already explained in connection with Fig. 115.

Where a spring-edge is to be formed on each side, as the lounges of Figs. 94, 95, the length of the twine is tripled instead of doubled in the measuring, a knot tied one-third of the distance from one end, tacked to the rail, and the longest twine passed first

around the front of the fourth coil of the nearest spring, then up to the back of the top coil, around it, knotted to the coils of all the center springs, slipped around the top coil of the last spring on the other side, down to the fourth coil at the front, and then tacked in place at A, as Fig. 127C. After all of the rows have been tied down in this way and the cross twines for all except the outside rows tied in place it will be found that all of the outside springs are capable of being shifted forward or backward in the twines. This is required to enable the workman to bring the top coil of every outside spring out even with the perpendicular face of the rail. Now, placing a rule or straight-edge perpendicularly against the face of the rail at A, Figs. 127B and 127E, the top of the spring is pulled forward until the front edge just touches the rule; each edge spring is brought forward in like manner until all are in uniform position. Now, pass the loose surplus twine around this coil, draw the front edge of the spring down, as Fig. 127D, to the height the edge is to be, usually two to four inches, according to the depth required; tie a knot in the twine which will inclose the wire, then over to the back of the spring, around the coil, and tie a knot which will include the twine already there, then down to the front of the fourth coil, knot again, out to the rail and tack in position. It is immaterial whether the twine should follow this route or first to the front of the fourth coil, up to the back of the top, out to the front and then down, but we have found the first method suggested to be the most convenient way of working. A convenient way of gauging the height of the edge is to take a small strip of cardboard and nick in one edge, as shown in Fig. 127D, which will provide an accurate measure for the height desired.

Where the spring edge follows around the corner of a piece of furniture a spring is placed right in the angle of the turn and tied diagonally, as shown in the detailed illustration of Fig. 128.

The small springs which are used to form the independent spring edge shown in Figs. 82, 89, 92 and 93 are not much used at present. We give the method, however, for those who wish to employ it. The springs (Fig. 105), should be about five inches high, and not over two and three-quarter inches extreme diameter; or if wider the rail upon which they set must be increased sufficiently to support the full width of the spring. These springs are tied down separately, as Fig. 132C, before being attached in position on the frame.

By constructing two or three box-like forms of different heights (Fig. 132), a spring can be compressed, placed within the form (Fig. 132B) and readily tied to the exact height. Each spring is tied four-square, as Fig. 132C, and then attached in position. The other springs of the seat are tied down in the ordinary way. The edge springs of the patent

Fig. 125

133A

133C

133B

133

Canvas

135A

97

132B

15

132

17

18

135B

134

135

136

134A

134B

134C

136B

DETAILS OF SPRING EDGE WORK

SPRINGING UP

construction shown in Fig. 97 are tied down in the same way as those of Figs. 127B and 127C.

After all springs have been completely tied down the next stage is to attach the wire edge to the edge springs. The wire used varies from one-eighth to three-sixteenths in thickness, according to the strength desired, and may be either of iron or steel as preferred, the steel wire, of course, holding its shape the best, but being somewhat harder to manipulate. Wire taken direct from the coil requires to be straightened before it can be used. For this purpose the wire straightener (Fig. 15) is a most convenient tool. It is made by riveting three iron pegs in a straight line to a flat metal plate, the distance between the pegs governing the amount of bending pressure given to the wire. By drawing the wire through these pegs, as shown in the diagram, so that a bend is given to the wire the reverse of the coil, the wire can be drawn out true and straight. It will be necessary to gauge the amount of pressure exerted by the center peg in proportion to the amount of curve in the coiled wire. A little experiment with three screws and a block of wood will soon give the exact ratio, after which the distance can be measured and a permanent wire-straightener made as illustrated.

In addition to the wire-straightener the wire-bender of Fig. 18, and a small piece of steel tubing slightly larger than the diameter of the wire, are important tools for spring-edge work. The wire-bender of Fig. 18 can be readily made by a blacksmith by upsetting a piece of half-inch octagon steel and filing a three-sixteenths slit in the upset end. By sliding the tubing on to the wire and placing the bender over the wire near the end of the tubing a very little pressure on the bender will cause the wire to make a square turn in any desired direction. The wire, as shown in Figs. 133, 133A, 133B and 133C, must follow the exact outline of the chair frame, maintaining a position parallel to the face of the frame wherever the spring edge is required. If the ends of the wire were attached to the frame in line with the top of the edge springs, as indicated by the dotted lines X of 133B and 133C, any pressure exerted on the springs of the edge would cause a direct pull on the point where the wire is fastened to the frame. To form a flexible hinge the end of the wire is bent downward and then inward, as indicated, and fastened to the frame by tacking over it a piece of webbing, as shown; this slight depression permits free action of the wire, and also permits access to the blocks for tacking purposes.

After the wire has been bent to the required shape it is bound to the edge springs with stitching twine, as indicated in Figs. 134, 134A, 134B and 134C, commencing at the center and interlacing first to one side and then to the other, then finally cross-

ing the twine several times around the interlace to bind all tightly together, and tied. After the wire has been fastened a piece of canvas large enough to cover the entire seat, reaching over the spring edge and down to the bottom of the frame, is tacked in position, as Fig. 135. The back edge B is tacked solid, taking care to have the thread of the canvas running squarely at right angles on the seat, as indicated by the stripes of the fabric in Figs. 136 and 136B, and then pulling tight enough to take out all wrinkles without depressing the spring edge, is slip-tacked all around the spring edge portion of the frame. Then with the stitching twine and packing needle the canvas is sewn to the wire with short stitches, up and back, as Fig. 135. Next release the slip tacks and trim the surplus canvas so as to leave about three-quarters of an inch to turn in and tack the canvas to the top of the frame all the way around, as indicated at A, Fig. 135, also detail Fig. 135A, being careful not to exert any pull on the wire edge, but keeping the canvas fairly tight. The armchair, 135B, is canvased in the same manner, tacking the back edge first, then slip tacking the front, sewing in the wire and tacking the sides last.

Ordinary spring-seat furniture is canvased as indicated in Fig. 136, always being careful to keep the grain or thread of the canvas running straight with the frame, as indicated by the stripes. Tack the canvas first along the top of the back rail to within about four inches of the corner, then pull to the front, turning the edge of the canvas over, draw tight enough to take out all wrinkles and tack from the middle each way to within about four inches of the corner, then the sides each way in like manner, leaving the corners to be tacked last. By working all of the wrinkles to the corners in this way it is possible to keep the canvas perfectly smooth and taut.

On the best class of upholstered furniture it is usual to sew all the springs to the canvas. The method, as indicated in Fig. 136, follows very closely the method of sewing the springs to the webbing on the bottom of the seat, with the exception that a four-inch circular needle, like Fig. 11, is employed, and the twine forms a knot around the spring at each stitch. See detail, Fig. 136A.

The canvas used for covering the springs should be either a heavy close form of hopsacking or a closely-woven striped hessian.

Where wire is used instead of rattan a metal clip, illustrated in Figs. 148, 148A, 148B, may be used to bind the wire to the spring. This metal clip, as will be seen, page 36, is so constructed that one edge is rounded to engage a segment of the circular-top coil of the spring, while the other edge is perfectly straight to engage the straight wire.

Box springs and upholstered mattresses have so many points of similarity to ordinary spring-edge

132C

136A

Bending wire.

139

143

138

143

142

142

142

137

134

137E

134A

134B

134C

140

137A

137B

137C

137D

DETAILS OF BOX SPRINGS

(See text on opposite page)

furniture that their springing up may be properly treated under this heading. Box springs differ in shape according as to whether they are for metal or wooden beds, the former being constructed as Fig. 137, to permit a part of the box to go between the side rails of the bed, while for wooden beds perfectly plain construction, as Fig. 137A, is usually employed.

The making of the frame is purely a matter of carpenter work, although the upholsterer is naturally interested in the form of construction. We give in Figs. 137B, 137C and 137D detailed plans of the corner construction, which may be followed or varied at will.

Box springs may be made with web, slat, solid wood or open-construction corrugated wire bottoms, and the springs are tied in the same manner as already explained for the lounges, Figs. 90, 91, 92, 93, 94, 95. The springs used should be of a size that will not require much reduction in the tying down, as this would impart a rounding surface to the top, whereas the object is to keep the surface of the spring as flat as possible.

Box springs are invariably made with a spring edge, using either a heavy wire for the edge or a piece of rattan specially marketed for the purpose, varying in diameter from three-eighths to five-sixteenths of an inch.

These are fastened to the edge of the springs by twine in the same manner as illustrated in Fig. 134 and 134A, B and C, with the exception that the wire is permitted to lie on the spring, as Fig. 138, instead of in front of it, as is the case in the spring-edge illustrations of Fig. 134, the reason being that rattan especially is so large that it would be projected too far beyond the face of the frame if it were attached to the front of the spring. The ends of the wire may be

fastened by an ordinary splice, or a better plan is shown in Fig. 140, in which the ends overlap three or four inches, and after being bound together and turned back are fastened to the side of the edge spring. This, of course, cannot be done with the rattan, which must be split and formed into a solid splice, as Fig. 138.

A metal clamp, Fig. 142, has been placed on the market which completely does away with the use of twine for attaching the rattan to edge springs. It consists of two pieces of metal, one a washer-like piece bent to clip onto the wire of the spring and to provide a seat in which the rattan may rest; the other a small strip of annealed metal, which hooks onto the wire and is then passed around the rattan and out through the bottom of the clip, where with a small tool, furnished for the purpose, the surplus is rolled into a solid coil.

This device not only holds the clip absolutely to the spring, but at the same time permits the use of a rattan of any size. Fig. 143, a device on the same principle, is used for the purpose of splicing the rattan.

The methods of canvassing, sewing the springs to the canvas and upholstering of box springs, are in all respects similar to methods which will be explained later in connection with various furniture pieces, and need not here be dealt with.

Fig. 139 shows a detail of the most simple form of box construction for upholstered mattresses, and is intended to be webbed with linen webbing each way. The two slats which cross the bottom of the box are to prevent the sides from being drawn in by the stretching of the webbing.

Fig. 137A shows a solid wood bottom construction with one-half inch holes bored therein to permit tufting.

144

145A

148A

145

148B

148

145B

145C

147

147A

147B

147C

DETAILS OF BRIDLED EDGE

(See text on opposite page)

THE BRIDLED EDGE

FOLLOWING the springing up and canvasing, next in order is the laying on of the stuffing, which follows many methods, according to the nature of the work in hand.

The method employed in the cheapest class of furniture consists usually of a bridled

edge and plain laid stuffing, confined only by the cover. This is the method commonly employed in the upholstering of cheap couches.

After the canvas has been tacked in place (see Figs. 136—136B) the "bridle," which consists of ordinary stitching twine, is sewn through the canvas in long stitches, as indicated by x, Fig. 144. This twine follows the front edge of the couch along the outside edge of the outer row of springs, just where the shape drops sharply from the edge of the springs to the wood.

Next the stuffing material, usually tow, or in the case of extremely cheap furniture excelsior, is picked free of all lumps and entered beneath the twine sufficiently to hold it in place, Fig. 145, while the surplus is made to form a big round roll, Fig. 145A, extending beyond the face of the couch and as high or higher than the tops of the springs. The roll is commenced at one end, and as each successive lump or handful of material is added the whole is kneaded together by the fingers into a compact, semi-solid form, having the appearance of Fig. 145B. Care must be taken not to allow stray wisps of material to fall below the top of the rail, but all must be nicely rounded in above the wood, as smoothly as possible.

After the bridled edge is complete a layer of stuffing material is spread over the entire surface of the canvas, being put in position handful by handful, and picked and kneaded together into a compact mass; then another layer and still another layer, until the desired thickness has been reached, as Fig. 145C.

No rule can be given as to how thick this pad should be. Sufficient, however, must be used to completely disguise or soften the presence of the springs underneath, and to give the article form and solidity. In appearance the uncovered stuffing should seem at least half as much larger in bulk than the completed seat is to be. Or, in other words, the putting on of

the cover should reduce the stuffing to two-thirds of its unconfined size.

If the article is to be upholstered in the cover direct, without any cotton underlining, it is now in position to measure for the cover. By passing a tape-line over the seat and pulling it as taut as the cover will be each way the measurements can be readily ascertained. With a little practice it is an easy matter to measure the seat for the cover before any of the stuffing is put on, simply drawing the tape-line over the canvased springs and allowing an extra quantity for the space that will be taken up by the stuffing.

The covering is invariably cut so that the pattern and warp threads run from front to back of the seat.

If, however, this would require cross seams that are disagreeably conspicuous, as Fig. 146, it is quite permissible to run the pattern lengthwise of the seat or back, as the case may be.

Seats or backs that are nearly square are usually slip tacked first from front to back; oblong-shaped seats are stretched first from end to end. Following the illustrations, Figs. 147, 147A, 147B, and 147C, the method of tacking down the cover from the first slip tack to the finished article will be easily followed, always bearing in mind that the corners are tacked last, and all fullness smoothed out each way from the center of every side.

No matter how well the stuffing material has been distributed, there will occur slight depressions or soft spots occasionally as the cover is pulled into position. To remedy this, additional stuffing is pushed up under the over-stuffing so as to crowd it out and fill up all hollows. Never add additional filling between the cover and the over-stuffing unless it is added in the form of another complete layer, as small pieces immediately below the cover will be visible as lumps in spite of the greatest care, whereas, if placed beneath the bulk of the first stuffing their presence is modified by the additional layers above, and the same purpose is accomplished.

150A

151

151A

151B

153

151C

151D

154

154A

156A

156

154C

155

154B

152

150

155A

152

DETAILS OF PAD-SEAT UPHOLSTERING

(See text on opposite page)

Examples of modern pad-seat furniture.

THE PAD SEAT

HEAP pad-seat pieces, such as the settee Fig. 149, are bridled for stuffing in the same manner as described for Fig. 145A, the bridling twine following the outer edge of the springs as indicated in Fig. 144, and the amount of stuffing inserted beneath this

twine to form the edge being sufficient only to fill up the hollow left between the edge of the springs and the frame. (See dotted line Fig. 150.) Successive layers of stuffing material are then laid upon the whole surface of the seat, as already explained for Fig. 145C until the pad reaches the required thickness.

By drawing a tape line tightly each way over the stuffing the size of the cover can be ascertained. Slip-tack the cover at the back and draw it toward the front then to each side, precisely as explained in the last chapter in connection with the bridled edge.

If the seat is to be upholstered in an under-cotton casing, the cotton is cut the required size and the back edge slip-tacked by three or four tacks, driven in only far enough to hold, as Fig. 151, then the front edge is pulled down to the front of the frame and slip-tacked in place as Fig. 151A, first in the center, then half way between the center and each outside corner. The sides are also slip-tacked in the same way, so that the complete slip-tacked seat will appear as Fig. 151B. Next release the slip-tacks at the back of the chair, turn in the edge of the cotton, and commencing at the center draw it down smoothly into shape and tack it in position (Fig. 151C). Then, working each way to

within about three inches of the corner and forcing the edge to assume a somewhat square shape, tack the cotton permanently in position (Fig. 151D). Care should be taken to keep the tacks of the cotton at least half an inch away from where the covering and gimp are to be tacked. Detail Fig. 152, of a cross section, shows the relative positions of the gimp, covering, cotton, stuffing, canvas and springs.

After the back is tacked permanently in place the front is tacked in the same way, and then each side, taking care to fill out any hollows which may appear by adding stuffing material beneath the main body, as already explained for Fig. 145.

The corners are tacked down in place last, because all surplus in the cotton must be smoothed out and disposed of in a final pleat at the very corner, as Fig. 153. When completely tacked in place the pad in cotton should present the appearance of Fig. 154.

149

If a more permanent upholstery is desired than this will provide, the edge, as formed in the cotton, can be regulated to a square form and the filling blind-stitched permanently into that position by means of a circular needle, following the method indicated in Fig. 154A. The needle passing in at A and out at B is re-entered again at B without catching any of the cotton, and is drawn out at C, thus enclosing a triangular-shaped quantity of stuffing which is drawn compactly to the front and retained there by the tightening of the stitch. Each successive stitch is pulled tightly into position and held in place by the free hand until the next stitch is taken.

Pad seats which have no spring foundation are upholstered in the same manner as pad backs and, to avoid unnecessary duplicate instruction, will be explained in that connection.

A more permanent seat still can be made by again regulating the stuffing material to the edge and adding another row of stitching around the edge, this time allowing the stitches to show on top as well as on the edge. This creates an edge very similar in appearance to the imperial-edge cushion shown in Fig. 63.

Where it is the intention to make an edge of this character, however, the cotton should be left sufficiently loose, when tacked permanently into position, to allow the stitching to be drawn tight without drawing the edge in from the square. Fig. 156 illustrates the fault to be avoided, and Fig. 156A the correct appearance of the stitched cotton seat. Should the drawing in of the edge not be very great, it can sometimes be released by the following method. Pass a long, double-pointed needle down through the cotton, stuffing and canvas, but do not draw it completely through the webbing (see Fig. 154B), then shift the top of the needle over a couple of inches, taking care not to enclose any portion of the springs or twine which do not lie close to the canvas, re-enter the needle in the canvas and force it up through and out of the cotton at the top. Repeat this stitch at intervals of about four or five inches around the seat, keeping about four inches from the edge, and then slash the center of the cotton, as shown in Fig. 154C. It will, of course, be necessary to use a light top stuffing, to round over this form of seat after it has been stitched, which can be covered with another piece of cotton either sewn to the edge, as Fig. 155, or tacked in position, as Fig. 155A, after which the covering is put on in the regular way.

THE HARD EDGE

HARD-EDGED furniture, technically so called to distinguish it from spring-edged furniture, takes its name from a hard stitched edge, which forms the front of the upholstered seat. Next to the proper placing and tying of the springs there is, per-

haps, no one feature of an upholstered seat so important to its appearance and durability as the stitched edge.

After the springs have been tied down and canvassed, as Fig. 157, take a piece of canvas—a strip will do—long enough to reach across the seat with about eight inches extra, turn the edge under (X, Fig. 157A), also turn in four or five inches of the end, and tack the corner to the frame at A, Fig. 157A. Keep-

ing the back edge turned under, draw the canvas across to the other side of the frame, turn in the surplus at the end and tack it at B, Fig. 157B. It will be noticed that these points A and B are practically in line with the edge of the front row of springs. Should the slope of the seat cause the canvas to slide away from this line, it should be pinned in place, as indicated in Fig. 157C, and sewn to the seating canvas with short stitches, as indicated. Allow a sufficient quantity of canvas to cover the space indicated by the broken line, Fig. 157E, with a little extra for turning in, and trim the surplus canvas away, as Fig. 158. This canvas or burlap, which should be as thin and pliable as possible without sacrificing the necessary strength, is to form the cover of the stitched edge, and though much more elaborately made, serves precisely the same purpose as the bridled edge of Fig. 145B.

After the surplus canvas has been trimmed off a quantity of tow or excelsior (or even moss or hair, for very fine work) is picked free of all lumps and inserted under the burlaps to form a full round "roll,"

162A

164A

159B

157E

160

163

162

157A

165

157A

157B

161

157C

157

164

158A

158

HARD-EDGE UPHOLSTERING.

(See text on opposite page)

162B

162C

162E

a term by which the stitched edge is frequently designated. This roll is slip-tacked temporarily, as indicated in Fig. 159, and in bulk should be about half as large again as it is desired to be when permanently tacked down. The strands of the fiber should run, so far as is possible, in the direction of the roll as indicated in the detail illustration Fig. 158A.

Commencing at the center, Fig. 159A, release the slip tacks, turn in the edge of the canvas and draw the roll down into position with one hand, as indicated, while the other hand squeezes and presses the mass into a somewhat square shape.

It will be seen that the canvas which confines the roll is not permitted to extend over the face of the rail. The rabbeted edge is usually only about one-half an inch wide and all of its surface is required for the tacking of the covering and gimp. When drawing down the roll, therefore, the canvas is turned in just above the rail and the tacks are driven into the top edge as near as possible to the front without having the heads project beyond the face of the rabbet, where they would be a menace to the fingers of the upholsterer. An examination of Figs. 162 B, C and D will make this point clear.

It will be of great assistance in forming the roll if the back edge of the burlaps has been turned straight with the thread, so that the lateral threads may serve as a guide in turning in the front edge. It is also extremely important that the roll should be filled exactly to the right degree of firmness, because if too hard it will be difficult to regulate and stitch, while on the other hand, if too soft, the stitched edge will not be sufficiently firm. No possible rule can be given that will indicate just how much stuffing material the roll should contain. One soon gets to know, however, with a little experience, and it is a good plan to practice on this point until the degree of firmness requisite for a satisfactory edge becomes almost a matter of instinct rather than of calculation.

If the roll as at first pulled into place for permanent tacking, as Fig. 159A, is found too hard, some of the stuffing should be drawn out, taking care not to remove it all from one place or in a lump; or if too soft more should be added beneath what is already in place.

As the roll is drawn down into position for permanent tacking the burlap cover should be pulled and smoothed in the direction of the lateral threads as well as straight down to prevent what are technically known

163A

165A

162D

THE HARD EDGE

as cat's teeth, or cat draws. Fig. 159B illustrates a roll in which this precaution has been neglected, and appears to be all hills and hollows, while Fig. 159C shows the appearance of a properly-formed roll. No variation should be made in the size of the roll from one end to the other, but it should follow absolutely the outline of the frame and be of a uniform firmness throughout.

If the frame is provided with tack blocks in the corners, the roll should be rounded off down to meet the blocks and tacked there, as indicated. The roll is then ready for stitching.

It is customary to put a stitched edge on the front only of such pieces as the arm-chair or sofa of Figs. 160 and 161. On pieces similar to the divan, Fig. 165, the lady's chair, Fig. 163, and the reception

chairs, Figs. 164 and 162, the stitched edge must be continued around the sides, as indicated in the different illustrations. The detail sketches Figs. 162A, 163A, 164A and 165A show the method of attaching the burlaps to these different pieces, and with the illustrations of the completed rolls above mentioned, clearly indicate the different steps to be taken.

The corners of the rolls, Figs. 162, 163, 164 and 165, are usually somewhat difficult to form.

Presuming that the roll has progressed to the condition illustrated in Fig. 162B, the slip tacks which

hold the canvas at A are removed and the filling and burlaps are forced to assume the shape indicated in Fig. 162C, taking care to keep the side roll to the same proportions as those of the front roll. The burlaps cover will be quite full at the corner B, and if too cumbersome the surplus should be cut away, as indicated at A, Fig. 162E, after which a pleat is formed to dispose of the surplus and tacked in position, as indicated at B, Fig. 162D. This accomplished the roll is ready for regulating and stitching. The stitching of the hard-edged roll is in many respects so similar to that of the spring-edged roll and of the double-stuffed seat, that the method employed will be explained later in connection with these other subjects.

DOUBLE STUFFING

AN IMPROVEMENT over the ordinary hard edge is made by what is known as double stuffing. After the seat has been properly sprung up, as Fig. 166, which shows the top view of the sprung-up seat of armchair Fig. 161, a quantity of stuffing

material, preferably tow, is picked free of lumps and is spread on the seat, as Fig. 166A, keeping the edges somewhat thicker than the center. Then a piece of light burlap is slip-tacked over the seat, as Fig. 166B, taking care to keep the thread perfectly straight, as indicated by the illustration. The burlaps must not be pulled so tightly as to in any way depress the springs or cause a slackening of the twines which tie them down into position.

Next with a double-pointed mattress needle the burlap is sewn down to the canvas which covers the springs by means of long stitches which follow around the outside of the seat about four inches from the edge, as A, Fig. 166C. The needle is passed down through the canvas, tow, canvas and webbing until the top point is free from the spring canvas. This point is then shifted over about an inch, taking care not to enclose any part of the spring or twine which does not lie close to the canvas, and forced upward again out through the top canvas in line with the direction of the stitch. See detail, Fig. 166G. This is repeated until the entire seat has been stitched around, as Fig. 166C.

The slip-tacks which hold the burlaps on each side are now released and the stuffing which lies between the stitching, A, Fig. 166C, and the edge B is supplemented by a sufficient quantity to form the roll already described and illustrated in connection with Figures 159A, B and C. This roll is repeated on all four sides of the chair, leaving the corners until the last. In the seat illustrated, which is chair 161, there are tack blocks in all four corners. The rolls must be rounded down to meet all of these blocks, to permit which the canvas is slit from the corner to a point approximately one inch from the inner corner of the chair leg, indicated by X, Fig. 166E. Drawing the canvas down to this point smoothly with one hand, the points of a pair of shears are inserted as Fig. 166D, so as to make the hole X, Fig. 166F, which indicates how far the slit B is to extend. Then

turning up the canvas cut diagonally from the corner B to X, the point marked by the shears, as Fig. 166H. The canvas is then drawn down into position and the corner tacked to the block, as indicated at X, Fig. 166E, keeping the tow and the surplus canvas smoothly turned underneath so as to leave fully an inch of the tacking block clear. Figs. 167, 168, 169, 170, 171 and 172 show the appearance of the chairs, divan and sofa of Figs. 160 to 165, with the double stuffing completely tacked in position, with rolls formed all around ready for stitching. The roll at the back is seldom stitched and is made somewhat smaller on that account.

For very cheap furniture an imitation double stuffing is formed, as Fig. 173, the canvas which covers the double stuffing not being extended beyond the line of the back tack blocks, the front only being built up for stitching and the sides only partially filled up and tacked on the top edge of the rail as indicated. The unconfined filling which extends beyond the back rail is confined later by the cotton which covers the entire seat. Fig. 174, which shows a cross section of a chair cut through from front to back, indicates the relative positions of the springs, spring canvas, spring twine, stuffing and double stuffing canvas. Fig. 175 shows a cross section (front view) and Fig. 175A a cross section (side view) of the armchair Fig. 167, double stuffed ready for stitching.

Spring-edged seats, after having reached the stage illustrated in Figs. 135 and 135B, described in a foregoing chapter, are double stuffed in a manner very similar to that already explained for hard-edged furniture. Commencing with the sprung-up chair of Fig. 176, a quantity of stuffing, preferably tow or moss, is picked free of lumps and laid upon the canvas to form a thin layer, taking care to keep stray wisps of stuffing from going beyond the wire edge (see Fig. 177). A piece of thin burlap, about twelve inches larger than the seat each way, is stretched over the stuffing and slip-tacked, as shown in Fig. 177A. The thread of the canvas should be kept perfectly straight and at right angles to the frame, as indicated in the illustration. When drawing down the canvas for tacking, it should only be pulled sufficiently to keep the fabric smooth, without in any way depressing the springs.

Next, with a double-pointed mattress needle, the top burlap is sewn down to the canvas which covers the springs, by means of long stitches which follow the outline of the seat about four inches from the edge, as Fig. 177B, taking the same precautions as advised in connection with the illustration of Figs. 166C and

166

166A

166B

166C

166D

166H

166F

166G

175

166E

175A

173

174

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159D

DETAILS OF DOUBLE-STUFFED UPHOLSTERING.

See text on opposite page.

171

168

172

166G. The tacks which hold the canvas to the frame are now withdrawn, the surplus canvas trimmed away, and a roll approximately about one and one-half inches high is formed all around the spring-edged portion of the seat, additional stuffing material being inserted beneath that already in place until the roll attains the desired fullness and firmness. The canvas covering the roll is pinned to the wire, temporarily, by skewers, as Fig. 178, and the roll is formed progressively, first the front, then the two sides, and lastly the corners, as already described and illustrated in connection with Figs. 162 B, C, D and E.

After the complete roll is formed and pinned in place, the burlap covering is sewn to the wire by means of a circular needle, taking stitches about one inch apart, as shown in Figs. 179 and 180.

Where there is no spring-edge, as the back of the chair, Fig. 135, and the back and sides of chair, Fig. 135B, the ordinary stuffed edge is formed for stitching, as described in connection with double-stuffed hard-edged furniture.

After the edge has been formed complete on all sides of the chair and tacked or sewn into position, the corner pleat, Fig. 181, is sewn to prevent it opening, as A, Fig. 182, and the rolls are ready to "regulate" into shape for stitching.

To regulate the stuffing into form for stitching requires a considerable degree of practice before a satisfactory smooth edge can be formed. Grasping the edge with the fingers and thumb of the left hand, as illustrated in Fig. 183, the regulator is inserted (see dotted outline) and given a twisting motion, using the

189A

187

187A

187B

185

189B

Detail 175

176

177

177A

177B

178

179

180

183

181

182

183C

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184

188

SPRING-EDGE UPHOLSTERING.

See text on opposite page.

canvas as a fulcrum and the regulator as a lever, the point of which crowds the stuffing toward the front and forces the roll, with the assistance of the fingers of the left hand, to assume the square shape illustrated in Fig. 183.

The stuffing in the corner A, Fig. 182, must be drawn to a sharp point, while at the same time kept uniform with the line of the edge each way, indicated by dotted lines B-B, Fig. 182. A slight hollow will be caused in the direction of the dotted line C, Fig. 182, and a much more satisfactory corner can be formed if this is first stitched in the manner illustrated by Fig. 183C. Entering the needle at A, it comes out at B, is entered again at C, and out at D, and there tied with a slip knot, as detail Figs. 183A or 183B. Entering again at D, it comes out at E, is entered at F and

out at G, and pulled tight. Holding the stitch with the left hand, enter again at H, out at I, in at J and out at K; pull tight and hold as before, and repeat as indicated by the letters until the corner is stitched out to a very fine hard point, as shown in the illustration, the twine being finally fastened by forming the last stitch into a knot. Sew all corners which are to be stitched in a similar manner and again regulate the rolls to correct any hollows that the sewing of the corners might occasion.

Most upholsterers stitch the edge from left to right, if right-handed, or from right to left, if left-handed. Commencing at the left extremity of the roll, as Fig. 184, the needle is entered at A, drawn out at B, again entered at C, drawn out at D, tied into the slipknot, already described, and pulled tightly. As the

188A

190

190A

190B

190C

190D

190E

191

191A

191B

191C

191D

190G

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193

191H

191E

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195

196

197

direction of the stitch is toward the right, instead of pulling the twine straight out from the edge pull in the direction of the stitch, as shown in Fig. 185. Continuing again as indicated by the letters, the entire roll is stitched around and the twine fastened at the end.

It is not necessary that the entire roll should be stitched with one single twine. Indeed, for long rolls it is much better to use two or even three different twines, fastening each with a knot, than to attempt to stitch it all with one twine, which is bound to wear rough close to the needle. Should one stitching not produce an edge as small as is desired, the roll may be again regulated and a second row of stitching run around it as before. See detail Fig. 186.

A cross section of the roll before stitching is shown in Fig. 187. The same roll with a single row of stitching is shown in Fig. 187A, and with two rows in Fig. 187B. A cheaper roll for hard-edged work is made by using, for the first row, the blind stitch already described in connection with Figs. 154A, 155A and 156A, after which a second stitch, indicated at X, Fig. 186, is made, as there illustrated.

To avoid the constant holding of the twine by the left hand, necessary to keep it from slipping back, a knot may be formed in the stitch, as indicated by details 189A and B, the formation of this knot serving to hold the stitch in place, however tight it may be pulled. As a protection to the hand, which sometimes suffers severely from the pulling of the twine, a glove minus the fingers may be worn, or what is equally efficient, a band of leather having a hole on each end to hook over the thumb may be substituted. See illustrations 188 and 188A.

With the stitching of the edges, what may be termed the foundation work of the seat is completed, and the double-stuffed pieces should present the appearance illustrated in Figs. 190 and 191. These foundation forms are now bridled in a manner similar to that described in connection with the bridled edge, Figs. 145A, B and C, and a thin layer of tow, moss or hair is inserted beneath the bridling twine, as Figs. 190A and 191A, taking care to keep the material from projecting beyond the edge of the stitched roll.

Successive layers of stuffing are now added over all the surface until the desired thickness is obtained. These layers of stuffing should be kept thicker toward the center, rounding off down to the edges all around.

After the stuffing is placed in position and all packed and kneaded together to form a compact mass, a piece of cotton, large enough to cover the seat each way and reaching to the frame all around is slip-tacked over the seat in the manner explained for Fig. 177A. Now, removing the slip-tacks at the back, draw the cotton down into position with the right hand while the left presses the stuffing down into shape (see detail, Fig. 190G). Should there not be sufficient stuffing to keep the edge round and full, additional material must be inserted beneath that already in place until the desired fullness is obtained. The front edge is next tacked down into position, and then the two sides, leaving about three inches each way from the corners to the last. Next turn back the corner of the cotton and inserting a pair of scissors, as indicated in Fig. 166D, mark the corner of the tack block, then cut in from the point of the corner to the mark made by the shears, turn in the edges, and tack the corners down into position, as indicated at X, Fig. 166D.

With stuffed-over frames the cotton may be tacked on the flat surface of the frame, but for show-wood pieces it is best to tack the cotton on the top edge, where the roll is tacked, as the rabbetted edge usually requires to be left free of everything except the final cover and the gimp. Fig. 190F shows a cross section of a hard-edged seat with the relative positions occupied by springs, spring canvas, double stuffing, double-stuffing canvas, top stuffing and cotton.

The method of putting on the cotton, just described, is followed with the spring-edged chair illustrated in Fig. 191 up to the point where the top stuffing is all confined by the slip-tacked cotton Fig. 191C. Next the slip-tacks of each side are lifted, the cotton pulled down smoothly, and tacked as already described in connection with the chair, Fig. 190, with the exception that where the spring-edge occurs the tacks are not driven entirely in. The

190F

166D

191F

DOUBLE STUFFING

corners are next cut and tacked into position, as illustrated by Fig. 166D, and with a circular needle and stitching twine the cotton is sewn just above the wire of the spring-edge, taking stitches about an inch long and in and out of the stitched edge, as shown in detail Fig. 191D.

This stitching must follow the spring-edge, the twine being kept perfectly tight and securely fastened off at the end. The slip-tacks are then removed, the cotton turned underneath and tacked above the rail, as Fig. 191E, taking care not to pull the cotton so tightly as to depress the spring-edge.

For furniture that is to be exhibited for sale in the cotton a much better appearance is presented by cross-sewing the cotton over the edge, as shown in Fig. 191H, using a very small circular needle and fine linen thread or silk twist, the advantage being that the cotton presents a neater appearance than is possible if sewn with twine in the way first described.

Fig. 191F shows a cross section of the chair, Fig. 191, which will materially assist in explaining the procedure above described. The armchair, Fig. 192, not being double stuffed, but having a stitched edge on the front edge only (see description of Fig. 157B), will require to be bridled on the sides and back edges marked X in Fig. 194. The method of building up

these edges is fully described in connection with Figs. 145A, B and C, and need not here be repeated.

If a more permanent or shapely seat is desired (on the three sides mentioned) than is furnished by the bridled edge these edges may be regulated and

blind-stitched in the cotton, in which case the edge of the cotton should be turned over, so that the two thicknesses of cotton will prevent the heads of the tacks from tearing through. The various progressive stages in the upholstering of the armchair just referred to are illustrated in Figs. 195, 196 and 197. Armchair Fig. 193 is upholstered after the same manner as Fig. 191.

After having reached the stage of Fig. 180, page 48, the rolls of all four sides are stitched into shape, the bridling twines put on, and then the stuffing and the cotton, as illustrated in Figs. 191A, B and C. Release the slip-tacks on one side and draw the cotton down and tack

it permanently. Repeat on the other side, then draw down the front smoothly, slip-tack again, and sew it, as Fig. 191D or Fig. 191H. Now release the slip-tacks which hold the cotton of the front edge in place, thus freeing the spring edge, and tack the back edge permanently, drawing out any fullness that may appear when the front slip-tacks are released.

198

201

THE PILLOW EDGE

IMILAR in principle, though different in construction to spring-edged furniture, is what is known as pillow upholstery, a style, though not often used, that it is well for the upholsterer to understand. The springs for a pillow-upholstered seat are placed

in position pretty much as they would be for spring edge, and are tied down after the same manner.

Taking, for example, the Turkish chair illustrated in Fig. 198, the springs are placed in the seat as shown in the top view of Fig. 199. Then commencing with center row (see A in cross section Fig. 199A), the spring twine is attached to the back rail, drawn through the back spring, knotted on the second coil, carried to the top C, knotted, and then to D, the top of the center

spring, dropped to E, the second coil on the front of the center spring, drawn through the front spring and

knotted to the coils encountered in a straight line from E to H. Care should be taken that when the twine is pulled tight and fastened the springs will remain in an upright position, as shown in Fig. 199A.

Now attach another piece of twine at A equal in length to the one first used, to be knotted progressively at I, C, D, J, K, L, G and K, as shown in Fig. 199B. Each row of springs is tied both ways in the same manner and the twine is also carried around the outside and knotted to each spring at the point G, as shown in Fig. 199D. A wire A—A, Fig. 199C, is attached to the edges of the outside springs in the same manner as if for the spring-edge already described in a former chapter.

The seat may now be canvased in the regular

201A

199G

199F

199B

199A

200C

200A

200

199H

199

199I

200E

200D

DETAILS OF PILLOW-EDGE UPHOLSTERY.

THE PILLOW EDGE

way, the canvas being first temporarily sliptacked, sewn to the wire, as illustrated, drawn down to the twine at G, and there sewn in the same way and the edges finally drawn out to the frame, turned over and tacked, as 199C.

A more simple method is illustrated in Fig. 199E, a strip of canvas there being first sewn to the twine G, using a separate strip for each side to allow for fullness at the corners, and tacked to the rail as illustrated. Next a piece of thin burlap similar to that already described for use in double stuffing or hard-edge work is also sewn at G, stuffed all around and sliptacked, as Fig. 199F. Now, following the same principle as already described in connection with hard-edge work, this roll, for such it really is, is stuffed to the proper degree of firmness, regulated and stitched to the form shown in Fig. 199G or H, or it may be filled up hard as a round roll without stitching, in the form of Fig. 199F. A piece of spring canvas should then be attached to the back rail, drawn smoothly over the springs and wire edge, temporarily pinned to the roll until the wire edge is stitched around, and finally turned under and sewn all the way round to the twine G already mentioned in connection with Fig. 199C. Now, sew the tops of the springs to this canvas catching each spring three or four times, and tying a knot each time, as illustrated in Fig. 199C.

Strips of canvas twelve to eighteen inches wide and at least twelve inches longer for each side than the chair is wide is next sewn to the same twine G or to the extreme back edge of the roll, allowing the corners to overlap. Afterwards these strips are stuffed to form a roll over the wire edge around the two sides and front of the seat, the principle being just the reverse (i. e., building from the bottom up) to that described in connection with the chapter on the stitched edge. This canvas after being filled firmly and smoothly is first pinned to the top canvas about in line with the back edge of the first row of springs, or about four inches from the wire edge, and finally sewn permanently to the canvas,

after which the filling is regulated out to a straight edge and stitched, as shown in Fig. 200A.

It will be noticed that the slight variation of shape in the lower rolls of Figs. 199F, 199G and 200A is followed in the shaping of the top edge so that it may correspond. A light double stuffing is now placed over all the seat, confined by a piece of thin burlap sewn to the edge behind the back row of stitches, as Fig. 200C. Finally the top stuffing is bridled in position in the same way as already explained for double stuffing, and confined by cotton sliptacked and then sewn to the edge, as shown in Fig. 200D.

After the seat is covered by sewing the fabric to A, the edge of the roll all around, as Fig. 200D, a strip of fabric wide enough to reach from A to G and then out over the lower edge and down to B, is folded and sewn to the twine G all the way around, after which the upper portion is lightly stuffed and sewn, and the turned-in edge sewn at A all the way around, while the lower portion is pulled smoothly around the bottom roll and carried down to B, where it is tacked to the frame. The seam at A, where the two fabrics join, is hidden by a cord, as shown in 200E, and also in the completed chair 201 and 201A.

The back of the chair is upholstered in precisely the same manner as the seat, pillow springs being used, of course, instead of regular seat springs. It should not be construed that the rolls mentioned in connection with pillow upholstering are to be as hard as those used either for hard-edge or ordinary spring-edge furniture. On the contrary, they should be extremely pliable, and to obtain best results it is advisable that nothing firmer than curled hair should be used in the upholstering, while the top of the pillow is greatly improved by the addition of a layer of feathers.

Pillow upholstering is one of the most luxurious forms of upholstering known, and to obtain the utmost resiliency oil-tempered springs only should be used in a size that will require very little tying down, as naturally the more a spring is tied down the less resilient will be the seat.

199C

199D

199E

203

203A

203C

202

203B

203D

203E

203F

203G

203H

203I

203J

203K

203M

202A

202B

202C

202D

202E

202F

203L

PAD-BACK UPHOLSTERING DETAILS.

See text on opposite page.

PAD BACKS

THE pad-upholstered backs of chairs Figs. 202 and 203 are somewhat similar in construction to the pad seats illustrated in a former chapter, and to those who have followed the previous explanation the accompanying illustrations will be almost

self-explanatory. A brief resumé of these instructions, however, will not be out of place.

Commencing with the chair Fig. 203, the back is first webbed vertically as Fig. 203A, the end of the webbing being first turned over and tacked to the bottom rail, then stretched up by hand and tacked under the top rail, as Fig. 203B. It will be noticed that the webbing is kept entirely within the frame, so that the rabbeted edge is left free for other purposes. (See detail Fig. 203C.) A cross webbing, if needed, is next put on. A piece of canvas is tacked to the bottom rail the same as the webbing, see illustration 203D, and then stretched, and tacked, first vertically as Fig. 203E, and then across as Fig. 203F.

A layer of stuffing material about two inches thick is spread upon the canvas and kneaded into a compact mass slightly larger than the outline of the

rabbeted edge, Fig. 203G. This material is stitched to the canvas through and through by long stitches, as shown in Fig. 203H, the stitches being first loosely put in with a mattress needle and afterwards drawn tightly, stitch by stitch, so that no slack remains. A final layer of stuffing material is then placed over all and the entire pad confined by a cotton cover, slip-tacked first at the bottom, as 203I, stretched smoothly each way, as 203J, and permanently tacked, leaving the corners to be finished last, as 203K. When drawing the edge of the cotton down for final tacking the filling should be forced to assume a square edge, as thick or as thin as the style of the piece demands. See detail illustration 203L. A still better edge may be formed by regulating the pad in the cotton and blind-stitching as 203M, after which a layer of fine wadding or cotton bats is placed over the cotton and the cover drawn over all.

It will be noticed in these several illustrations that the tacks which confine the cotton are kept as near to the inside edge of the frame as possible so as to leave the most of the rabbeted groove free for the cover and gimp. Care should be exercised in tacking both canvas and cotton, so that neither the heads nor the points of the tacks project above the surface of the rabbet, where they would be a menace to the fingers of the workman.

The oval-backed chair, Fig. 202, is in all respects treated as Fig. 203. It is well to note that as there are

204

204A

205A

204B

205B

205C

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205D

206C

205E

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206A

206E

206F

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206B

no corners to the oval pad, pleats, as shown in Fig. 203L, are not permissible. The surplus at the corners is disposed of in the same manner as illustrated in connection with the round-end couch, Fig. 147C of a previous chapter. The cotton is first tacked at the top and bottom, then at each side, leaving the four corners free, as Fig. 202D. Next draw down one corner, turn the surplus cotton in and tack it at a point midway between the tacks of the bottom and side, see Fig. 202E. Next take it midway between this corner tack and the last tack of the side, and again midway between these two tacks until all the surplus cotton is disposed of. (See detail illustrations Figs. 202 D, E and F.)

Somewhat different in method of construction, though similar in principle, are pad backs which shape into a concave form, as the back of chair Fig. 204. It will be noticed in the cross section, Fig. 204A, that between points A—A the surface of the back, instead of following a straight line from point to point, follows rather the shape of the wood frame and is decidedly concave.

It is very necessary in shaped chairs that any concavity of the frame should be very closely preserved in the upholstering, as otherwise the effect will be completely spoiled. To preserve this concave surface the workman must commence at the very outset

by webbing only vertically and by placing all of the strain on the canvas from bottom to top, the lateral threads which run from side to side not being drawn more than sufficiently tight to prevent wrinkling.

After the stuffing is put on, the cotton under-covering must be treated in the same way as the canvas, that is, so that the chief strain on the fabric is from bottom to top. It will be readily seen that to exert any very strong pull from A to A would tend to raise the center and flatten the edges. For this reason, therefore, as little strain as possible is placed on the lateral threads. A little experiment will quickly demonstrate the method here described.

Chair 205 shows still another form of pad-back upholstering, the bottom and top rails of the back being overstuffed and thus concealed, the webbing and canvas may be tacked on the surface of each rail, as shown in Fig. 205B. As is the case with chair Fig. 204, the top rail of the back of chair, Fig. 205, hollows back perceptibly between the points A—A. The webbing and canvas, therefore, must be stretched from bottom to top and barely tightened from side to side. After the back has been canvased, a layer of stuffing material is placed thereon, as Fig. 205D, sewn to the canvas where possible, as previously described, and several large tacks driven through it into the top rail, allowing sufficient material to project above

206D

PAD BACKS

the top to nicely round over as a cushion for the rail. Other layers of material are then placed over all until the desired thickness is obtained. The cotton under-cover is next drawn through between the back rail A and the seat rail B, Fig. 205E, and slip-tacked to rail B, as illustrated, then drawn up over the back rail and slip-tacked there also. The sides are next slip-tacked, drawing the cotton smooth but not tight. The bottom of the cotton is released from the slip tacks, any deficiency in the way of stuffing inserted to make the bottom of the back smooth, and turned up and tacked to rail A, permanently or temporarily, as desired. The top is then released, drawn over smoothly, sufficient filling being supplied to nicely round it over, and permanently tacked to the rail, after which the sides are turned in and tacked also.

The cross section of the back shown in Fig. 205F illustrates the method described. Some upholsterers to insure smoothness at the bottom of the back build a small roll in burlaps, indicated at X, Fig. 205F. This, however, is not really necessary unless the back is to be sprung up. It will, of course, be understood that the seat of Fig. 205 is already upholstered and cottoned before the back is commenced, and care must be taken that the bottom of the back on the line B—B, Fig. 205, follows smoothly across without wrinkle or depression.

The sides of these backs are sometimes blind-stitched in cotton, and when this is done it is necessary that the fabric should be left a little less tight across from side to side than would otherwise be the case. That is to say, the action of stitching the side tightens the cotton, and unless sufficient allowance has been made for this, the whole back will be flattened to that extent. A glance at the appearance of the finished chair sketched in Fig. 205 will illustrate the effect to be sought; the rest must be acquired by practice.

Another form of pad-back chair is shown in Fig. 206. In this chair, however, there are no depressions to be allowed for. The back may therefore be webbed both ways, *i. e.*, upright and across, if desired. Both webbing and canvas are tacked upon the surface of the rails, and the cotton also is tacked just at the edge, as shown in 206D. The only feature of importance to observe peculiar to this style of back is to be sure and allow sufficient slack in the cotton when permanently fastened to permit of it being blind-stitched on both sides and top without the stitches drawing the cotton in beyond the edge of the frame. Fig. 206E shows the proper appearance of the stitched pad, Fig. 206F, the appearance of one in which this caution has not been observed.

END OF PART I.

Furniture Upholstering

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CIRCULAR BACKED CHAIRS

THE more simple forms of pad-upholstered furniture have already been covered in previous chapters of this series. By natural progression we come now to pad upholstering of a more intricate and difficult character, treating the subject

in a series of grouped examples the upholstering of which follows similar methods.

For instance, the explanation applying to the upholstering of chair Fig. 208 applies also to Figs. 209, 210, 211 and 212, for though the construction differs

with respect to general outline the method of working is exactly similar in all cases.

Fig. 207, the skeleton frame of chair 208, gives a very fair idea of the general construction of these and similar pieces. The seat may be upholstered, as already explained in other chapters, with either spring-edge or hard-edge, as the choice may be. In either case, however, care should be taken not to consume the entire top edge of the back and side rails in upholstering the seat, as with chairs of this character having a show-wool rail all around, all of the tacking except the outside lining must be taken care of on the top surface of these rails.

In forming the seat it is well to bear in mind that the central portion only of the seat is subjected to wear. That portion which will eventually be concealed by the upholstering of the back and arms may

207G

207H

CIRCULAR BACKED CHAIRS

therefore be made to slope sharply down to the frame, as indicated by the shaded lines below the arm of chair, Fig. 207A.

After the seat is upholstered in cotton, the next step is to canvas the back so as to support the flat pad which forms the upholstering; first a stiff wire about No. 6 gauge is bent so as to form an outline around the inside of the frame and tacked solidly to the supporting uprights, as well as to the arms at a distance of about a quarter of an inch from the seat. See detail Fig. 207B. This wire is to serve two purposes. First to support the bottom of the canvas which forms the foundation of the back, and second to prevent the stuffing from shifting down out of position.

After the wire has been secured in position the back may then be canvased, each section separately, as Fig. 207D, the lower edge being passed around the wire and sewn with long stitches. Stretch the material first from bottom to top and then across so as to retain the hollow shape of the frame proper. It is possible to canvas these chair backs with a single piece of canvas, but the method is both wasteful and unsatisfactory. Too much emphasis cannot be placed upon the necessity of keeping the upright threads from A to B (207D) as tightly drawn as possible.

The outside or rear appearance of the canvased chair should now appear as Fig. 207E. Now taking a piece of cotton sufficiently large to cover the entire back, cuts are made in the lower edge to escape the stretchers AA and BB, Fig. 207F, and the edge is drawn through between wire and seat and slip tacked, as shown at X in the same illustration. The surplus cotton is then stretched up over the seat and slip tacked to keep it out of the way, as shown at AAA, Fig. 207G. A layer of stuffing, as thick as the upholstering is desired to be, is now worked into shape around the entire surface of the back and arms and sewn to the canvas by means of long stitches. Care should be taken to keep this layer well distributed and free from lumps or unevenness, as it is difficult to add small por-

tions to any particular place without rearranging the entire mass.

After the stuffing material has been arranged in position, the cotton is released from the slip tacks at the front of the seat AAA, 207G, and drawn up into position all around the back and slip tacked, as Fig. 207H. Then commencing at X, the center of the back 207I, the edge of the cotton is turned under, being careful to keep a firm square edge to the pad, and tacked permanently, working each way from the center of the back, right around to CC, the two outside corners; then from BB to CC on each side and from BB to AA. Where the back hollows in at B, Fig. 207J, it will, of course, be necessary to slit the cotton at intervals, as illustrated at the left side of the illustration.

These slits, however, should be made only as needed and the cotton kept tightly drawn from tack to tack, smoothing the surplus out toward the corners. The bottom of the cotton which passes beneath the wire is next drawn into position, slitting the cotton at intervals to allow for the spread, and working from the center of the back at X, 207K to the outside of the chair at D. These tacks are only temporary tacks, but the fabric is pulled into the same position it will occupy when finally tacked so as to make sure that the bottom of the back on the inside of the chair is free from wrinkles.

After the lower edge of the cotton has been all slip tacked, as Fig. 207K, the arms may be finished off from A to D, turning in the surplus cotton and keeping the edge square, as shown from B to C, etc., 207J.

When ready to cover the chair, the cotton represented by the portions A—A, Fig. 207K, is released where slip tacked, turned up and pinned to the canvas, as shown in 207L. This permits the covering of the seat and of the back to be tacked into position on the rail after which the strips A—A are turned down and tacked permanently.

It will be noticed in the illustration, 207J, that the lines which indicate the thread of the cotton do not follow around the back parallel with the wire, but drop considerably as they reach the center of the back. This is caused by reason of the circumference of the seat line being very much less than the circumference on a line with the top of the arm and around the top of the back. The same feature is noticeable regarding the pattern of the cover, as illustrated in Fig. 208. The quantity required to permit of this deviation from the straight line around the wire naturally varies with different styles and can only be determined by actual measurement. A part of this bias, for such it really is, may be allowed for by piecing the goods with a seam at EE, pinning the fabric first in position on the cotton cover surface, as 207M, and trimming off all the surplus except what is required for a seam.

207 I

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It will be observed that all of the chair frames illustrated in Figs. 207, 209, 210, 211 and 212 are of the show-wood variety. Somewhat similar forms are also made partially and completely over-stuffed. Of this character are Figs. 213, 214, 215 and 216, which are but types of a large variety of pieces similar in upholstering construction. It should be borne in mind that throughout this series we have sought only to teach general methods specifically applied rather than the selection of a complete series of upholstered pieces explained in detail.

Fig. 213 departs very materially from the method employed with Fig. 207, in that the back of the chair must be kept shallow throughout all parts, the upholstering firm and the entire surface smooth and uniform. It is seldom satisfactory to upholster such pieces as those illustrated in Figs. 213 to 216 direct in the cover, because the sweeps and curves of the frames demand an elasticity in the fabric which confines the upholstering that is seldom possible in the cover proper. Cotton by its loose-weave construction will stretch in certain places, where required to, and contract in others with little difficulty. For instance, the circumference around the outside edge of the top rail is manifestly greater than around the lower rail of the back from C to D, and the cotton, therefore, must possess certain elastic qualities. Taking the chair frame Fig. 213A, the back is first canvased, as 207 D in the foregoing portion of this chapter, and will appear approximately as 213B. The top rail of the chair back from A to B is invariably rounded—see detail Fig. 213C,

and where this is the case it is not necessary to add a pad for this purpose. Where, however, the rail is square or has only rounded edges, it is necessary to add a pad enclosed in burlaps which will soften and smooth the entire rail, as detail Fig. 213D. This accomplished, the back is ready for the main stuffing.

Draw the cotton through between the seat and the lower back rail on the line E—F and slip tack as indicated in Fig. 213E. Bridle the entire back, as previously instructed in connection with other pieces, and insert a light pad to form the edge all around the back, as 213F. The bridling twines are easily visible in the illustration. The top layer of the stuffing material is now kneaded into the bridled stuffing over all the back, taking care to keep the entire mass free from lumps and of an even thickness and density throughout. Next draw the cotton up over the back and slip tack, as shown in 213G, carrying the cotton well over so that the tacks are in the outer edge of the rail.

Because of the curve in this chair back it will only be possible

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to work the cotton from the center X to each of the outside extremities A and B, a very little at a time. As soon as the threads in line with the bottom blocks E and F have been reached, which will be approximately at the points G and H, it will be necessary to proceed again with the bottom edge of the cotton, slip tacking from E to C on the left of the chair and from F to D on the right, after which the slip tacking of the top can be continued from H to A and from G to B.

As the cotton is pulled into position it may be necessary to slit the top edge to allow for the increased circumference. If, however, instead of the lateral threads following a straight line, as dotted line 1.....1, Fig. 213H, the extremities are permitted to draw up so that the lateral threads follow more the shape of dotted line 2.....2, additional fullness will be created for the top edge; at the same time there will be less where less is needed, between the points E C and F D. The cotton is now entirely slip tacked all the way round and should display by its irregular surface any inequalities present in the stuffing, which must be remedied. Next in order the bottom of the cotton from E to F is tacked in semi-permanent position, that is to say it must be perfectly smooth on the face of the chair, though the tacks which hold it in position must be lifted later, as already shown in Fig 207L, to allow for the insertion of the cover. The top of the back is now drawn over the rail smoothly and tacked permanently from X to H and to G then to A and to B, taking care to keep the lateral threads smoothed tightly, and allowing no stray wisps of stuffing to protrude beyond the tacking line. Detail Fig. 213I shows the method of smoothing and pulling the cotton, while Fig. 213J shows the appearance of a badly smoothed piece of work. Unless the utmost care has been taken, or if the upholstering is extremely shallow, there may exist wrinkles from X to X, as shown in 213K. These are not always avoidable in the cotton, but if sufficient lateral strain is kept on the cotton when tacking from X to A and E to C, and also at the corresponding

places on the other side, there should be no difficulty.

To cover a back of this character with fabric of a pliable nature there should be no occasion for seams except to piece out goods that are too narrow. With leather, however, which is less pliable, it is necessary to resort to a seam to dispose of the fullness around the center of the back. This seam instead of being straight follows an arc, as indicated in 213L, the center portions B being first temporarily slip tacked in place and the side pieces A A accurately fitted and pinned thereto, then sewn, and all uniformly stretched into place. The radial lines of pull shown by dotted lines and arrows 213M indicate why the circular seam will dispose of the wrinkles. Care must be exercised, however, that the curve of the seam when tacked in position should be uniform and not zigzag. It is purely a matter of skillful manipulation, and the successful upholstering of a chair back in leather, such as the one illustrated, is no mean accomplishment.

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THE chair illustrated in Fig. 214 is somewhat similar in general makeup to the chair, Fig. 213, with the difference that the curve of the back and arms is rather more rectangular than circular.

The frame of this chair, as shown in Fig. 214A, is usually but a mere skeleton on which the upholsterer may build a variety of different forms, according to his skill or fancy. With the form illustrated in the completed chair, Fig. 214, the object has been to keep the upholstering true to the shape of the chair and somewhat thin.

Commencing with the chair frame 214A, as on other occasions, the first consideration is the seat, which is upholstered either spring-edged or stitched-edged, as desired, and should appear when finished like Fig. 214B. The wire A . . . A has been referred to in connection with other chairs, and its function should now be understood. Sometimes these chairs have a stick dovelled into the frame between the arm and the back posts intended to receive the bottom of the arm canvas. Where these sticks do not suit the height of the seat they must be removed and another stick or the wire substituted at the proper height, care being taken to follow the shape of the frame in either case.

Next in order, after this wire is attached, the entire chair is canvased as Fig. 214C and the first

stuffing laid on the back and sewn through with long stitches, as Fig. 214D. Where the cotton passes between the wire and the chair seat at the back it must, of course, be slit to allow for the upright support in the middle of the back, as explained in connection with Fig. 207K. The first layer of stuffing (tow, moss or hair), in addition to being sewn to the canvas, must

be thoroughly worked and kneaded together so that it follows the exact contour of the chair back. The more solid the stuffing materials are kneaded together at this stage and hereafter, the less difficulty will be experienced in causing the cotton to take proper shape and proportions.

After the final layer of stuffing has been placed on the back, as Fig. 214E, taking care to keep the edges of the frame free from protruding wisps, the cotton is drawn up and slip-tacked, as Fig. 214F, after which it is smoothed into position and permanently tacked, as Fig. 214G.

The arm is next treated in a manner similar to the back, the first stuffing being laid on and stitched, as Fig. 214H, and the cotton drawn up and slip-tacked, as Fig. 214I. It will be noticed that the point where the frame joins the back, at A, Fig. 214I, is very much higher than the outside extremity of the arm, therefore sufficient cotton must be allowed to cover this point. The back covering having been previ-

214 I

214R

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ously tacked to the rail, A to B, Fig. 214G, it will be readily seen that the cotton of the arm cannot also be tacked at this point without leaving a very wide crevice. To avoid this, therefore, the edge of the cotton from A to B, Figs. 214I and 214J is turned in between the stuffing of the arm and the face of the back so as to inclose the stuffing in the fold, this crevice being afterwards blind-stitched together, as Fig. 214K and enlarged detail 214L.

By referring to the completed chair illustration, Fig. 214, it will be noticed that the seam from A to B is finished by a piping of the same material as the covering. This piping is usually used only when the chair covering is of leather, fabric coverings being blind-stitched together at this point like the cotton, Fig. 214K, or being fitted, the seam pressed open on the wrong side and the whole drawn smoothly into position on the chair. To cover the chair with leather the back piece and the arms must each be fitted into position, slip-tacking where necessary, as Fig. 214M, and the surplus between the points A . . . B trimmed away so that the two edges may come together with a small allowance for seam.

Each edge of the seam, that is to say, the edge of the back and the edge of the arm coverings, must be marked at different points, as 1, 2, 3, 4, Fig. 214M, so that they can be sewn together in the same relative position as when temporarily fitted to the chair. Prior to joining these two edges together a piping consisting of a piece of cord one-eighth to one-quarter of an inch in diameter is covered with

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leather or fabric, as shown in Fig. 214R, and this is inserted between the edges, 1—1, 2—2, 3—3, 4—4, etc., while the seam is made. (See diagram Figs. 214O and 214P.)

It is possible to sew both the welt and the two edges with one machine operation, but to do so requires considerable skill, and unless one is very proficient it is better to sew the welt separately, and even then the whole should be

pinned together to avoid the danger of the edges becoming misplaced while on the machine. The edges protruding beyond the seam indicated at X, Fig. 214O, must be trimmed as close as possible to the seam, so that they do not bulge when pulled into place on the chair. The welt, of course, will project, but the rest should lie perfectly smooth, as detail Fig. 214N. A similar welt, Fig. 214S, is tacked as a finish between the band which covers the rail and the tacks which hold the seat covering in position.

This welt need not be sewn (though it is an advantage to do so), the tacks which fasten it to the chair frame being sufficient to hold the welt in shape, and the tacks which hold the top edge of the band by following close up to the welt will hold it permanently in position. The band which finishes the chair is, as indicated, Fig. 214Q, tacked into position and then turned down and tacked around the bottom edge so that no tacks are visible except those at the tops of the legs and these are afterwards covered by leather-headed nails or fancy tacks.

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Though somewhat similar in type to chair 214, the chair illustrated in Fig. 215 varies in certain essential points. It is a combination of the stuffed-over and showwood types in that the edge of the arms reaching from the seat well up into the side of the back are defined in polished wood and are uncovered. The back is of the knife-edge variety and in the frame is shaped to a very thin tapering edge. The frame of this type of chair is clearly illustrated in Fig. 215A. The seat is usually constructed with a spring-edge front, the wire returning at the corner well back under the arm to a point about equivalent to X, Fig. 215 B.

After the seat has been upholstered in cotton to the stage illustrated in Fig. 215B, the back is next proceeded with. In the case illustrated it is desired to have the back sprung up so as to make a more comfortable form of upholstering. A rail, if not already provided for in the frame, is inserted between the posts of the back just above the line of the seat, as XX, Fig. 215C. This provides a wood surface around all the back on which the webbing may be tacked. This webbing may be stretched in two ways to obtain different results. If stretched rigidly with the webbing stretcher the back after springing up will be perfectly flat and the springs will therefore be no higher than the face of the back will permit. If stretched by hand just sufficiently to take up the slack, the springs will force the webbing to hollow back, thus providing a little bit deeper back and more play for the springs. This difference is illustrated in Fig. 215F, the straight line of the frame X showing the position of the webbing when tightly stretched, and the dotted line O showing the position it will assume if loosely stretched by hand.

Three strands of webbing, or more if desired, are placed each way on the back, the ends turned over and securely tacked. Nine pillow springs, light enough to provide the desired resiliency, are now sewn to the

webbing on the face side of the chair and tied down all around as explained in former chapters. The chair will now assume the appearance of Fig. 215D. The back is then canvased over the springs, as Fig. 215E, and the springs sewn to the canvas, as indicated by the dotted lines. It is possible to sew the springs to the canvas without first having tied them down, as shown in Fig. 215D. Where time is not a consideration, however, it is best that they be first tied before canvasing, though the twine that ties them be no larger than a stitching twine.

After the back has been canvased there will be an abrupt drop from the edge or lowest row of springs down to the stick which crosses the frame just above the back of the seat, and which will hereafter be referred to as the lower rail of the back. This space is filled in with a light pad confined in canvas which passes between the seat and lower back rail and is tacked to the outside of the back rail at 2 and sewn to the canvas which covers the springs at 1, Fig. 215F.

On this foundation the stuffing material, preferably hair for a chair of this character, is picked out free from lumps and spread over all the back, confined by bridling twines, as illustrated in Fig. 214D. The same mode of procedure as explained in connection with illustrations Figs. 214E and F is now followed until the back is completely shaped in cotton, as Fig. 215G.

It will be noticed that this chair frame provides space through which the cotton may be drawn between the edge of the back post AA and the upright stick BB. The cotton must, of course, be cut around the arm at CC so as to keep the general contour flat and smooth. The top edge of the back must be kept thin and free from lumps, as the beauty of a chair of this kind depends very largely on the smoothness of the upholstering.

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The arms are next canvassed, treating the upright B as the back edge of the arm and tacking the canvas thereto, as illustrated in Fig. 215H. A wire may be stretched from D to D to hold the bottom of the arm canvas, but if the bottom edge of the canvas be doubled under and spread perfectly tight it will invariably answer the purpose just as well as if it were sewn to a wire.

After the arms have been canvassed, a layer of stuffing material, as illustrated in Fig. 215I, is bridled into position and the cotton drawn up and tacked to the arm at the front and top, slipped between the upright B and the back, and tacked to the upright, and the bottom edge tacked to the seat. See illustration Fig. 215J. It will be noticed that in this illustration from A to A the space provided between the upright B, shown on left side, and the back has been entirely filled so that only the crease caused by drawing the fabric through for tacking is presented. Should the upright B be so far from the back as to leave a space of not more than half an inch no concern need be felt because when covering the arm in the cover by carrying the back edge to A instead of tacking it at B the space will be closed, and should it sink in too far the stuffing may be inserted between the stick B and the back to fill out any hollows.

After the chair has been completely covered in cotton, the next consideration is the fitting of the permanent covering. To the workman who has followed the instructions given in previous chapters the matter of covering the seat, arms and back of this chair should present no difficulties. This chair, however, introduces a form of band not hitherto explained.

The end of the leather or other covering is brought over the edge of the seat and pinned for sewing, as illustrated in 215O. In working leather it is best to use a diamond or spear-pointed needle, especially if the leather is of close texture. After the cover has been sewn around the front edge of the seat, as illustrated in Fig. 215O, a welt made after the method explained in connection with Figs. 214R and 214S is sewn just beneath the edge of the seat. See B, Fig. 215K, the welt hiding the stitches which hold the edge of the cover.

Next with a large circular needle sew a row of bridling stitches along the front of the chair midway between the top of the edge and the front rail. A band is now cut and joined up, long enough to reach from the tacking block on one side, X, Fig. 215B, out to the front, across the chair and back to the corresponding block on the other side of the chair. Commencing at the block on the right side, the top of the band is turned down about three-quarters of an inch and temporarily tacked to the corner of the block at X, allowing an inch or two surplus beyond the tack. Then with a circular needle blind stitch the band all round

Special knife-edged spear-point needle for sewing through leather upholstery covering.

the front of the chair, following just beneath the welt and alternating first into the chair then into the band, with stitches about one inch long, as Fig. 215L. Following the letters A to G in this illustration, it will be noticed that the needle has entered the band at A, coming out at B, then enters the chair at C, coming out at D, and the next stitch being taken in the band entering at E and coming out at F, to be followed by a stitch in the chair which enters at G and comes out at H. This stitch is purposely shown between B and C and also where it enters the band at A, but after the twine has been pulled tight the stitch should not show at all. Care must be taken, however, to have the stitches running from the band into the edge and from the edge back into the band perfectly straight. At the corner of the seat, X, Fig. 215L, it is necessary to allow about an inch for fullness. This allowance is made by bringing the needle out from the corner A, Fig. 215M, entering the band at B, and coming out a half inch distant, and re-entering again about an inch farther and coming out at C one-half inch from the last point of entrance. The needle again enters the edge at D, one-half inch from A, coming out at E, the length of the regular stitch, where it will be seen that by pulling this twine tightly all of the fabric contained between B and C will be pressed into the one-half inch space between A and D, thus forming a pleat which when straightened out should appear as Fig. 215N. It requires a little practice to allow just the right quantity of fullness for such a corner, and the quantity is governed by the amount of stuffing to be inserted under the band, a full band requiring greater fullness at the corner, and a flat band less.

After the band has been entirely sewn around, as shown in Fig. 215P, the requisite amount of stuffing is inserted under the bridling twines already referred to, and the whole is smoothed into place and tacked to the front rail, taking care not to exert sufficient pull to depress the springs of the edge.

After the band has been entirely tacked around, as Fig. 215P, a second band similar to the one mentioned in connection with Fig 214Q, is applied as a covering to the front rail, completing the chair front as shown in Fig 215.

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Though having shaped backs, the various pieces illustrated in Figs. 207 to 215 have all been treated as if single stuffed direct in the cotton under-covering. We now progress to a more substantial form, applying the double-stuffed principle to the back of a shaped settee.

While the piece illustrated in Fig. 216 might also be blind stitched in cotton and not double stuffed, better results in shape and durability are obtained by double stuffing, though it is, of course, more expensive.

Commencing with the frame, as illustrated in Fig. 216A, the seat is first upholstered, either spring or stitched edge, and covered in cotton, as Fig. 216B.

The three sections of the back are next canvased, as Fig. 216C.

By reason of the sweep of the back it is advisable to divide the double stuffing into three distinct sections, doing the center of the back first and afterwards each end separately. For convenience, however, it is well to put all of the first layer of stuffing material on at once, which is sewn through to the canvas by long stitches, as Fig 216D. Next a piece of coarse burlap sufficient in size to cover the central portion of the back, is slip tacked to the back of the seat, below the

back rail, K, Fig. 216N, drawn up over the filling and slip tacked at the top, after which it is also sewn down through to the back canvas with long stitches, the top row of stitches following X X X, the outline of the rabbeted edge, and about four inches from it, Fig. 216E.

The process of filling up the edge to form the roll for stitching, Fig. 216F, has already been fully covered in former chapters, so much so that the illustrations here should suffice without explanation.

Fig. 216G shows in detail the roll after having been stitched in the canvas, the central portion being now completed and ready for the second stuffing.

The bottom edge of the double-stuffing burlap is not tacked to the seat but is drawn through and turned up and tacked to the back rail, as shown in Fig. 216N.

In Fig. 216H is shown another piece of burlap slip tacked over the stuffing on one end of the settee so as to continue the covering of the back around to the front of the arm. This burlap is sewn down by long stitches in a similar manner to that already followed with the center of the back, as 216I, and on the line X X, where the two edges of canvas come together, the surplus is turned in so as to leave but a crevice where the two meet. This crevice, after the roll has been

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completely stitched around, as Fig. 216J, is sewn together by means of a circular needle so that the canvas forms one continuous surface around all the back.

After all three sections of the back have been stuffed in the canvas and the rolls stitched around, as illustrated in 216J, a sufficient number of bridling twines to hold the stuffing distributed over all the surface are next put in place, as Fig. 216K, section A, and a light pad of stuffing is kneaded into place under the twines, as Fig. 216K, section B, after which another light pad, as Fig. 216K, section C, is spread over the whole surface, keeping the edges of the roll clear of stray wisps, and a piece of cotton slip tacked over all, as Fig. 216L.

In slip tacking the bottom of the back care should be exercised to keep the fabric as free from wrinkles as possible, to avoid needing to slip tack this part a second time before the back is completed. Some upholsterers after having once slip tacked the cotton, go over it all again with slip tacks to dispose of the wrinkles, working from the center to the outer extremities.

If the bottom has been carefully slip tacked in the first instance, however, it will not be necessary to go over it a second time, and the expert workman can proceed, commencing at X, the center of the top back rail, Fig. 216L, to tack the cotton permanently in place, turning under the edge smoothly and working a little at a time from the center to each extremity.

It will, of course, be necessary to notch or clip the edge of the cotton in some places to allow for the abrupt curves in the outline. The cotton must also be smoothed laterally, that is to say from center to end, in order to keep the whole surface free from perpendicular wrinkles.

A back of this kind would present serious difficulties to the novice, but for one who has followed progressively the instructions we have given from the beginning until the present, with practice in the vari-

ous processes described, it should present no serious difficulties.

As a final illustration to make clear the entire appearance of the finished piece we show in Fig. 216N a cross section cutting through the center of the settee. This shows clearly the various layers of stuffing material, the different canvases, the stitched edges and the final cotton. A close study of this illustration will go far toward explaining the other figures here mentioned.

A large number of heavy pieces of furniture, including davenports, settees and lodge chairs are upholstered with a roll, pillow or head rest at the top of the back, such as the chair illustrated in Fig. 217. A great deal of the work in connection with the upholstering of such a chair has already been referred to in previous chapters. In this chapter, therefore, we will only explain in detail such portions as have not already been covered.

The frame, as illustrated in Fig. 217A, may be taken as a typical frame for this kind of chair, in many cases the back rail of the seat being somewhat deeper than either the side or front rails.

After the seat has been covered in cotton to the point illustrated in Fig. 217B, the opening of the back is webbed on the outside, following the plan already illustrated in connection with chair Fig. 215 and shown in Fig. 215C. The springs having been tied down should appear as shown in Fig. 217C, after which they are covered with canvas, as illustrated in Fig. 217D. It should be borne in mind that the springs used in the back of a chair, such as the one under discussion, must be of a character to allow a considerable degree of pliancy, as the chief object of using springs in the back is to obtain a more comfortable form than would be possible with the ordinary padded back.

A side view of the springs as tied down is shown in Fig. 217E, in which it will be noticed that the general curve of the back has been retained in the tying down of the springs.

A back of this character may be upholstered direct in the cotton and then blind-stitched, or double-stuffed with the edges stitched up in the regular way, as shown in Fig. 217F. The pillow or roll is required to be much softer than the body of the back, and for this reason is upholstered separately.

It will be noticed in Fig. 217K, showing a side view of the back after having been upholstered in cotton, that the stuffing of the lower portion of the back has been allowed to swell out to form a pad which fits the hollow of the small of a person's back. This pad, as well as the entire filling of the back, is not required to be any harder than is sufficient to prevent the tops of the springs from being felt. It takes considerable practice to determine the proper amount of stuffing to be used and the proper degree of hardness which must

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be preserved. As a general rule, however, it is best to allow it to be at first a little harder than is ultimately intended to offset the extent to which it will soften up in using.

After the back has been covered entirely in cotton, as shown in Fig. 217G, a sufficient number of springs for the pillow or roll are attached to the top rail of the back, as shown in Fig. 217G. These springs, generally three or four in number, are next tied down, as indicated in Fig. 217J, to a height approximately the same as the upper part of the back. The matter of tying down the springs has been so fully covered in other chapters that the illustrations should be all that was necessary in this connection. If preferred, the springs may be tied down separately and independently, as Fig. 217I, after which they may be attached to the rail and covered in canvas, as Fig. 217J. Too much stress cannot be laid upon the necessity of

keeping this portion of the chair back exceedingly soft, and only a very light pad sufficient to form the shape should be added to the springs, as Fig. 217L.

While it is perfectly proper to double-stuff this part in the same way as the back has been double-stuffed, it is not generally considered necessary, as a blind-stitch in the cotton, as Fig. 217Q, will answer the purpose of keeping the edges square, and the fewer coverings there are over the springs, the softer the pillow will be.

The crevice defined by the line XX, Fig. 217M, may either be left free or closed by stitching the pillow to the back, the latter method being preferable if the line is to be defined by a cord.

The arms of this chair, though not difficult, require a certain degree of skill to keep them flat and square, which they must be in order to follow the general outline of the chair.

If the chair is not already provided with a stick similar to the one shown at XX, Figs. 217N and 217O, it is well to insert one, leaving about an inch space between the edge and the back post of the chair. The object of this stick is to provide a rail on which the back edge of the covering may be tacked, the canvas being tacked as shown in Fig. 217N, and the cotton drawn through the crevice A and tacked on the outside of the stick, as Fig. 217O. To keep the arm shallow and square, as shown in Fig. 217P, it is well to sew the stuffing material to the canvas so as to form a compact pad before the cotton is put on, tacking the pad down rather firmly to the stick B which forms the top of the arm in Fig. 217N. A light pad then distributed over all will soften the surface so that when the cotton is finally tacked down and the front edge blind-stitched it should appear as Figs. 217 and 217P.

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218S

218U

SIMPLE BUTTONING

TO COMMENCE a description of the various kinds of buttoned upholstery we must again return to the most simple forms, forms though perhaps not in general common use that are, nevertheless, typical and common to certain localities.

The chair illustrated in Fig. 218 is in common upholstery parlance a "sleepy hollow" or "student's easy." The frame, as illustrated in Fig. 218A, represents one of the cheapest and simplest forms.

Commencing with the bare chair frame, it will be noticed in Fig. 218B that three strands of canvas nine or ten inches wide and folded to a strip of about four inches are tacked at the top of the back rail, pulled moderately tight and tacked to the top of the front rail, turning the ends over and tacking again, as has already been explained in connection with the webbing of other pieces. A strip also is tacked across the back just above the arms, as shown in Fig 218B.

The three seat strands should have sufficient elasticity to allow the bottom cross webs, which are

shown in Fig. 218C, to draw them down to a point half way between the top and bottom of the rails, following the dotted line of Fig. 218D.

The bottom webs of Fig. 218C are interwoven with the canvas strips and stretched, by means of the webbing stretcher, tight enough to draw the canvas strips down into place, at the same time making them fairly tight.

Next a large piece of heavy burlap wide enough to reach from the top of one arm down to the webbing across the seat and up to the top of the other arm, and long enough to reach from the top of the back to the back rail and then out to the front, allowing for tacking and turnover, is stretched over the chair, keeping the thread straight, and tacked as shown in Fig. 218E. A strip of canvas folded to four thicknesses about an inch wide is also tacked along the top of the back rail to prevent the first tacks from

pulling through. Next draw the canvas from the back rail to the top of the back and tack it there, from the back rail to the top of the front rail, and so on until the chair has been completely canvased, as

218M, M1

218

218A

218B

218C

218D

218E

218F

218G

218H

218N, NI

SIMPLE BUTTONING

shown in Fig. 218E, following throughout the lines indicated by the crosses on the frame of Fig. 218B.

The canvas is next sewn down to the webbing of the seat, as shown in Fig. 218E, and marked for buttoning, as Fig. 218F.

It will be noticed that the crosses which mark the places for buttoning in this diagram are numbered consecutively from 1 to 31. The first row, 1, 2, 3, 4, is about four inches forward of the back rail; the row 8, 9, 10, 11 is about seven inches from the front rail, while the row 5, 6, 7, is midway between; the row 12, 13, 14, 15, is about eleven inches from 1, 2, 3, 4; 19, 20, 21, 22 are from ten to fourteen inches above the lowest back row, while 16, 17, 18 and 23, 24, 25 are determined by ruling from point to point of the other rows. Thus 12, 13, 14, and 15 are each six inches apart, and the same distance lies between 19, 20, 21 and 22; by ruling from 13 to 19 and from 12 to 20 point 16 is determined, while the same lines continued mark 25 and 24.

It is impossible to give exact distances for these buttons as the sizes of the frames may vary considerably. We have, however, sketched them in the proper relative position, which should obviate the necessity for any detailed explanation.

The next consideration is the marking of the cover, which for the average chair will require to be full fifty inches wide and from sixty to sixty-three inches long. The exact length of the cover can be determined by passing a tape line from over the top of the back down to the second row of buttons, as shown in Fig. 218S. Pinch up tape line so as to allow two or two and a-half inches extra, stretch it tight from the second row to the fourth row down; pinch up another extra one and a-half inches, and then draw the tape from the fourth row of the back to the back row of the seat, without any allowance. Stretch it from the back row of the seat to the front row; pinch up an inch and a-half allowance; then over the top edge of the front rail, allowing two or two and a-half inches extra.

Note should be taken of the measurement on the tape when it reaches the back row of the seat, indicated in Fig. 218F, by the numbers 1, 2, 3, and 4, as this is the line where the covering is first attached.

Supposing this measurement to have been thirty-three inches and the whole measurement sixty inches, the fabric is spread out, as shown in Fig. 218R, face down, and from the top, measure down thirty-three inches, at which point draw a line across the whole width of the goods. If the goods have been folded in the middle, the crease will define the center of the width, otherwise it must be found by measurement.

After this center has been determined, as marked by the double arrow in our diagram, presuming that the button marks 1 and 2 are six inches apart, a mark

is made on the line already drawn across the goods three and three-quarter inches on each side of the double arrow, thus allowing seven and a-half inches of goods to cover the space between buttons 1 and 2.

To the right and left of these marks again other marks are made seven and a-half inches distant, to provide for buttons 3 and 4, leaving on each side of the outside buttons thirteen and three-quarter inches of surplus material to cover the balance of the space.

After these button marks have been determined, with needle and twine the buttons are drawn into place and tied securely, as shown in Fig. 218G. Next with a quantity of filling picked free of lumps the slack covering between buttons 1 and 2, 2 and 3 and 1 and 4, Fig. 218H, is stuffed up full so that the stuffing extends out to the next row of buttons, 5, 6, 7.

As no pleats are formed in this covering, the center of the fabric is next grasped at the point which will pull into place at button No. 5, and drawn down by the left hand, while the right hand with the packing rod forces a crevice leading back from the button to where it loses itself in the swell of the filled-out fabric between buttons 1 and 2, Fig. 218T.

Proceeding across to the right, button 6 is pulled into place similarly, and also button 7.

The slack of the goods from 7 to 5 is next stuffed up, using the packing stick in the right hand, while the left pinches up the mass between buttons 1 and 7 so as to form a ridge with a deep depression beside the buttons. See Fig. 218U. By repeating this process between buttons 1 and 5, the ridge is continued into a V, and the same thing is repeated between 7 and 4, 5 and 2 and 6 and 2.

The crevices leading back from the buttons 5, 6 and 7 are carried forward also by using the packing stick as already advised, 218T.

Commencing at the center again, the front row of buttons is inserted by the same procedure. Now, following the thread from button 8 straight out to the edge of the frame, the fabric is pulled tight and

SIMPLE BUTTONING

a slip tack inserted directly opposite the button, as shown in Fig. 218K. This is repeated with buttons 9, 10 and 11, after which the pipes formed between the slip tacks are stuffed up, as shown in Fig. 218Q.

Next the thread of the fabric from button 1 is drawn straight to the button mark 12, and the button inserted. The fabric is also drawn in a similar manner from 2 to 13, 3 to 14 and 4 to 15, thus forming three pipes, which are stuffed full, taking care to keep the filling from forming into awkward lumps, and keeping the whole mass smooth and uniform.

It is hardly possible for the hand to be inserted to the bottom of these pipes, and for this purpose the packing stick already mentioned is employed. These sticks or rods may be of wood or metal, spoon or chisel-shaped to suit personal preference. The chisel-shaped wood rod is illustrated in Figs. M and M1, and the spoon-shaped metal rod in Figs. N and N1, the toothed end being from one-half to three-quarters of an inch in width, and the rod approximately sixteen inches long. With practice these packing sticks may be manipulated for a great number of purposes, the most simple of which is that herewith described.

After row 12-15 has been pulled into place and the loose fabric filled out with the stuffing, the succeeding rows are drawn into shape, as already explained for the seat, and a row of slip tacks corresponding with the buttons 23, 24 and 25 is inserted in the top rail, as already explained for the front of the seat.

After the pipes which finish the top have been filled up, the slip tacks are loosed, one at a time, and a sufficient quantity of stuffing inserted beneath that already confined in the pipe-like divisions, so as to form the swelling pillow, shown in the diagram of the finished chair, Fig. 218. To dispose of the surplus fabric,

pleats are formed running up from each of the top buttons, as shown in Fig. 218Q, the mode of progression being still further explained by Fig. 218P, the back view of the chair. Pipe X, the right-hand corner of the chair back, is first formed and tacked into place at 1, then a pleat which will dispose of the surplus is formed at 1A so as to overlap X slightly, and tacked into position.

The pipe XX is next tacked into position, drawn down at 2, and a pleat formed at B to dispose of the surplus as before.

Similar pleats are formed at C to dispose of the surplus at the corner, and at D and E, running from the side buttons 15 and 22.

The front of the chair is next stuffed up in a similar manner, forming pleats leading from the buttons to the front rail to dispose of the surplus, and the same process repeated with both of the arms. Wherever there is surplus fabric to dispose of it must either be stuffed full or formed into pleats so that the whole chair will be smooth and uniform, as shown in the diagram of the completed chair, Fig. 218.

The outline of the upholstering as related to the lines of the chair frame can readily be followed in the cross-section diagrams 218R and 218S, the former showing a cross-section side view, and the latter showing a cross-section front view. It will be seen by these illustrations that the upholstering is comparatively shallow, the chair depending largely for its comfort-giving properties on the shape, which gives the chair its familiar name of "sleepy hollow."

The lining of the outside arms and the back is a simple operation and the principles will be explained in connection with later pieces, although the chair here shows it to have been completed.

219E

219F

219G

PLEATED BUTTONING

OUR last chapter covered the upholstering of one of the commonest forms of chair frames—a “sleepy hollow” or “student’s easy.” The same chair may be upholstered buttoned all over, but instead of indenting the filling away from the button, the surplus material from button to button may be formed into pleats, making a much more artistic form of upholstering, but at the same time considerably more difficult. As a matter of fact a “sleepy hollow” pleated all over is by no means a simple chair to upholster, and as the pleating principle is the same as that pursued in more simple pieces, we will not here explain the method of pleating the upholstering of a sleepy hollow, believing that the workman, having been enabled to master the intricacies of pleating through the explanation of more simple pieces, will, when occasion demands, be fully able to apply the same principles to a chair of this type.

This same chair is also upholstered with a spring seat and buttoned back and buttoned arms. In a former chapter some of the principles of buttoning, including diamond, biscuit and bun tufting, were covered in connection with the making of cushions which have a wooden foundation, and some of the details may possibly be repeated in this chapter. This, however, will do no harm and will be much more convenient than to refer to a chapter so remote.

To prepare the frame of a student’s easy chair for upholstering we begin again with the frame, as illustrated in Fig. 218A. We have already explained the method of upholstering a spring seat both for

stitched edge and spring edge, so that it suffices here to say that the chair as provided with a spring seat should appear as shown in Fig. 219.

A strip of webbing is next stretched across the back, midway between the seat and the top rail, as indicated in Fig. 219A. Next a stick, X, hereafter referred to as the lower rail of the back, is inserted, as shown in the same figure. Wherever it is possible it is well to put this stick between the upright supports of the back, so that it will not interfere with the face of the upholstering.

Now a piece of burlap slightly larger than the dimensions of the back is tacked, as indicated in Fig. 219B, stretching the thread perfectly straight each way and drawing the canvas as tightly as it is possible to do by hand.

By referring to the illustration 219B it will be noticed that the canvas is marked for four rows of buttons, the row nearest to the seat containing four, the next one three, the next one four and the top one three. Two crosses are also shown on the bottom rail of the back, but these do

not represent buttons, but serve a purpose which will be explained later.

The first row of four buttons is planned to come just a little above the tops of the arms in the uncovered frame. In our illustrations this is approximately about nine inches from the seat, and they are about five inches apart, that is to say, the two center marks are two and a-half inches from the middle of the back, and the two outside marks five inches from the mark on each side of the center. The next row above is from four to six inches away from the first

Top

33½ inches.

219C

219H

219

219A

219K

219D

219J

219B

219L

219 I

PLEATED BUTTONING

row according to the height of the back, and the two remaining rows are kept similarly separated.

Where any quantity of chairs are to be upholstered, following the same identical form of buttoning, a deal of time can be saved by making a pattern through which the canvas may be marked for buttoning. To prepare a paper pattern for such a back it is only necessary to take a piece of tough wrapping paper and cut it the shape of the back, tacking it over the canvas temporarily so that the marks, as we have described them, may be made on the paper. After each point has been determined, the paper is punctured so as to make a hole about three-sixteenths of an inch in diameter. Then by laying this paper pattern over the canvas and with the end of a small stick forcing a drop of asphaltum stain or other quick-drying pigment through the pattern on to the canvas, an indelible mark is made which can be easily distinguished either from the front or back of the chair.

To measure the covering for the back, as marked for buttoning in Fig. 219B, the same method is followed as that already explained in connection with Fig. 218S. Taking a tape line from the top of the rail to the second row of buttons, pinch up two and a-half inches to allow for fullness in buttoning, draw it tightly from the second row to the fourth row, pinch up one and a-half inches, then draw it to the point where the back rail touches the seat, as shown at X, Fig. 219B, and noting the measurement, allow two inches extra, which will give you the length required for the back. The width is determined in the same way. Passing a tape around the edge of the back on one side, stretch it around to a corresponding point on the other side, across the face of the back; allow one and one-half inches extra between each two buttons and between each outside button and the edge of the back, five spaces altogether, and add this to the measurement, thus determining the total width required. Thus, if the outside button is four inches from the edge of the back, allowing one and a-half inches for the thickness of the edge, the total measurement shown by the tape would be twenty-five inches, and with an inch and a-half extra for each of five spaces, the total would be thirty-three and one-half inches, as shown in the diagram, Fig. 219C.

The figures in this diagram are not intended to be absolute or representative of the actual chair, but are only shown to illustrate the method of marking.

Now to mark the covering, as shown in diagram, Fig. 219C, presuming that the first row of buttons is nine inches above the seat, draw a line across the back of the goods, eleven inches from the bottom; find the center of the line thus drawn and on each side of it, presuming that the buttons of the back are five inches apart, mark points on either side distant three and

one-quarter inches from the center, thus defining a space six and a-half inches to cover the space between the two middle buttons. On the outside of each of these make other marks six and a-half inches distant, and this, as shown in the diagram, leaves seven inches to cover the remaining space at each side.

The covering thus defined, however, does not allow for the material which will be required to reach from the front of the lower rail of the back down to the back of the seat. Excepting in the case of a very cheap covering, it is well to piece out the bottom of the fabric with some inexpensive material, such as ordinary cotton, to reach from just under the stick at the bottom of the back down to a point where it can be tacked on the back rail of the seat.

Instead of a strip of fabric a piece of stout twine may be used attached to the lower edge of the covering in line with each button, as shown in Figs. 219D and 219L. This twine is drawn through between the stick and the seat, after the first row of buttons has been put in, and, though it is attached only to four places in line with the four buttons, it serves the purpose of holding down the whole bottom of the back.

After the covering has been all marked, the four points indicated by the crosses in Fig. 219C are tied down with button and twine to the corresponding four points in the bottom row marked for buttons of Fig. 219B, the chair at this stage appearing as Fig. 219L, except that two of the twines leading from the two right-hand buttons have been drawn through to correspond with the two points marked X on the back stick of Fig. 219B. The purpose of drawing the fabric in this manner is to form three distinct pipes of the material, to be stuffed up so that they round over nicely, leaving a deep depression from button to seat. All four of the bottom twines are pulled through and temporarily tacked before any stuffing is inserted.

The manner of stuffing up the slack material and tying in the next row of buttons has been fairly well covered in connection with chair, Fig. 218. In that connection, however, the fabric, instead of being pleated from button to button, was indented away from the button by forcing a crevice with the end of the packing rod. It will be noticed that the crosses for the second row of buttons are each in line with the center of the space between two crosses on the bottom line, so that in drawing down the cover of the second row for buttoning one must be very careful to keep the thread of the covering straight.

Now grasping the covering at the center and noting the center cross of the next row of marks on the back of the covering, the covering is pulled down so that the button mark comes over the button mark on the line, Fig. 219E, and with needle and twine this button is pulled into place, and so on, until all the buttons of that row have been pulled in.

FIG. 220.

FIG. 220E.

FIG. 220A.

FIG. 220B.

FIG. 220F.

FIG. 220C.

FIG. 220D.

FIG. 220G.

FIG. 220H.

PLEATED BUTTONING

If, after the buttons are pulled down, it is found that the fabric is slightly slack, it is a simple matter to insert a little more stuffing under that already in place, to bring about the desired plumpness.

It will be noticed after this has been done that from button to button, Fig. 219F, there is a certain fullness which has not been filled up. This fullness is formed into pleats from button to button, if, indeed, they have not already been formed to a considerable degree by the pulling of the buttons into place.

All pleats on the surface of a tufted back are turned so that the wear comes with the pleat, so that in this case the pleats from 1 to 7 and 2 to 7, Fig. 219F, face downward and toward each other, as indicated by arrows. Thus a cross section cut right through across the back of the chair between the line 1, 2, 3, 4 and the line 5, 6, 7, would show the pleats as they appear in this figure. The third row and then the fourth row of buttons are pulled in in the same way and the top finished off with pipes, as explained in connection with the chair, Fig. 218.

Pleats are formed from the side buttons also and the whole back finished up to the stage indicated in Fig. 219H.

The arms are next canvased by inserting the stick where the arm is to join the seat on which the bottom of the arm canvas may be tacked and the space divided into three, as indicated in Fig. 219I.

By marking for the buttons either just below the wood or in some instances on the wood, where tack buttons may be used, the covering for these arms is determined in the same way as already explained for measuring the back, taking the dimensions each way over all and adding tacking allowance an extra inch and one-half between each two buttons for fullness, and an extra allowance also of two or three inches over and above the measurement from the seat up to the frame and out to the outside edge.

After the covering has been cut and marked and buttoned into place, tacking twines are attached to the lower edge, as already explained for the back, forming pipes, the slack stuffed up full and the top of the arm finished by forming the surplus material into pleats, which extend from the button up and across the top of the arm, as indicated in Fig. 219J.

Where the arm joins the back, instead of inserting a button, the edge of the covering is turned under, stretched tight each way and fastened so that when stuffed up it forms simply a crevice where the two meet. At the front of the arm, on the rabbeted tacking edge, the fabric is first slip-tacked so as to form a pipe, and after the stuffing has been inserted, is permanently tacked into place with as few pleats as possible. It would be impossible to tack the covering along the front of the arm and across the top without having to have a pleat at the corner, and there is no need in attempting either to do away with

it or disguise it. On the contrary, it is much easier to make this pleat as definite as possible so as to take in all of the slack in a single pleat, Fig. 219K.

The simple forms of pleated buttoning, such as we have illustrated in connection with Figs. 218 and 219, are not hard to apply to different pieces of furniture once one has grasped the method. Within certain limitations the principles of diamond buttoning or tufting, as it is referred to in the abstract, may be applied to practically all kinds of upholstering, from the luxurious davenport to the delicate reception chair. Perhaps the most common form is that illustrated in the finished settee, Fig. 220, on the opposite page, consisting of three horizontal rows of buttons which form diamond-shaped spaces across the back. The space to be upholstered on the back of a chair or settee of this type usually is not more than from fourteen to eighteen inches high, and for this reason it is not advisable to mark the buttons more than four or four and one-half inches apart horizontally.

To mark the back after having been canvased, as previously explained in connection with other pieces, three lines are ruled across the canvas on which points for buttons are marked, as shown in Fig. 220A. By comparing 220A with 220B it will be noticed that the first row of buttons on the former is six inches from the lower rail, the second nine and one-half inches from the lower rail, and the top one thirteen inches from the lower rail, while in 220B they are respectively six, nine and twelve inches from the lower rail. Either way would be correct so far as working is concerned, but 220A will be found to give a better appearance.

Fig. 220A shows the same distance left between the outside button on the lower row and the frame as is left between the buttons, making all the pipes across the back perfectly uniform, as is shown in the completed settee and in Fig. 220E, in which the buttons have been numbered. It will be seen that button 17 is placed nearer the frame than button 8 of the bottom row in order to complete the diamond, eight buttons in the bottom row and nine in the center row, giving the finished effect of Fig. 220D.

In Fig. 220C the center row of buttons has been

FIG. 220 I.

FIG. 220 J.

PLEATED BUTTONING

evenly spaced but the position of things has been reversed, making nine buttons on the bottom row and only eight in the center row, making a small pipe at each end of the back between the last button and the frame, a method not to be recommended.

In Fig. 220F we show the method of marking the back so as to have an even number of buttons in the center row and an uneven number in the bottom row, but the same have been properly spaced by allowing a slightly larger distance between the buttons. To mark either of these backs after the lines have been ruled across one should follow the order of numbering on Figs. 220E and 220F. In the former, buttons 1 and 5 are equally distant from the center point of the back; 2, 3 and 4, etc. are measured the same distance and marked accordingly; then 18, 19, 20, 21, 22, 23, 24 and 25 are marked to correspond with the bottom row, after which by ruling from 1 to 19 and from 1 to 22 and following across the entire center row, all except 12 and 17 are located without any trouble. Buttons 12 and 17 are measured out on the center line and marked a corresponding distance.

In Fig. 220F button 1 is in the center and is the first point marked, after which the method of procedure is the same, the only difference in the two backs being that one has three buttons more than the other.

Fig. 220G shows the appearance of the back during the process of tacking down the top edge of the pleats and has been sufficiently explained in other con-

nections to make nothing further necessary beyond the illustration.

Fig. 220H shows the same number of buttons, but instead of pleating the back the upholstery is cut away from the buttons after the manner illustrated in connection with Fig. 218.

For high backs, such as the back of a cosy corner or a high davenport, interesting variations may be made in the buttoning by simply dropping out one row of buttons. Note the difference between 220I and 220J. Both panels have been marked the same but in 220J the fourth row of buttons has been dropped and by drawing the fabric from the third row to the fifth row and stuffing the surplus to form pipes an elongated diamond is created that makes a pleasing variation to the straight diamond repetition, as is the case with Fig. 220I.

We have already in various other chapters described the entire principle of stuffing up the bottom row of pipes, forming the pleats and pulling in the buttons of diamond tufting so that explanation need not be necessary here. To show the order of progression, however, we have arranged Fig. 220E to emphasize the point that the easiest plan to follow is from the center to the outside edge; button 1 is followed by 2, 3, and 4; then 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17 and so on in the order as they are numbered.

We have already covered in this chapter the matter of pleated buttoning for square-shaped backs.

221.

223.

222.

221A.

223A.

222A.

224.

224A.

225B.

225A.

225.

223B.

223C.

226.

226A.

PLEATED BUTTONING

these having been covered in connection with Figs. 220 to 220J. We illustrate in further explanation of pleated buttoning a number of pieces which show irregular backs; also two pieces which show over-stuffed tops. The actual upholstering of such pieces should in all respects follow the same procedure as that outlined in connection with Figs. 220 to 220J.

The fullness allowance between the buttons of Figs. 221, 222 and 223 is practically the same as that mentioned with Fig. 220, one to one and one-half inches extra. It should be borne in mind, however, that a thick covering requires more fullness than one that is very thin. For instance, plush will require the full one and one-half inches or maybe more, whereas a very fine satin damask will make a good appearance with one and an-eighth or one and a-quarter inches allowance for fullness.

The fullness allowance, moreover, governs the thickness of the upholstering, so that if the shape of a piece requires very shallow upholstering this should be borne in mind when marking the buttoning allowance. For very deep upholstering one and three-quarter inches might be allowed for fullness between buttons, but anything more than that, unless the buttons are widely apart, is apt to become "sloppy" in a very short time. There can, however, be no set rule any more than there can be a set rule regarding the number of buttons to be inserted within a given space. It can only be fixed according to the judgment of the upholsterer with the actual piece of furniture before him.

In 221A, 222A and 223A we show the outlines of the backs of Figs. 221, 222 and 223 marked for buttoning, the button marks numbered from 1 up to show the order in which they are inserted.

In Fig. 222 it will be noticed that a pleat is formed from button 10 down to a point on the frame corresponding with button 6; and the same is repeated in connection with button 12 and with buttons 16 and 18.

In Fig. 221 all the pleats have been carried

straight out or straight down from the outside buttons because the shape of the back lends itself readily to the appearance this makes. To carry out this same plan, however, with Fig. 222 would make a very awkward appearing back, for the pleats from the buttons to the edge of the frame on each side would be at variance with the pleats from button to button, as shown in Fig. 222B. By comparing Fig. 222B with Fig. 222 it will be seen that the latter is much more to be preferred.

The arms of the settee Fig. 223 are also pleated in the same way, that is to say, from the buttons to the outside edge of the frame in line with the pleats from button to button.

In Fig. 223B we show a detail of the arm, and in Fig. 223C another detail showing the buttons numbered according to sequence, as they are put in.

Figs. 224 and 225, though somewhat similar in design and form, are yet sufficiently different to make it desirable that each be illustrated. The back of Fig. 224, though not so shown in the illustration, is slightly curving, following the shape of the seat; that of Fig. 225 is more nearly flat.

We have already illustrated a somewhat similar chair in connection with Fig. 205, and to avoid referring back to these illustrations we here repeat the illustrations of 205, 205A and 205C, which show the bare frame and the frame canvased.

These chairs after having been canvased are marked for buttoning, as Fig. 224A and Fig. 225A, the top row in each case going on the top rail either as a tack button or sewn in through holes already bored in the rail to receive it.

It will be seen in connection with each of these chairs that the width across the top of the back is greater than at any other point, so that in measuring for the covering the width measurement is taken across the top rail, pinching up an allowance for buttoning as each mark is passed, while the upright measurement must allow for the covering going completely over the top rail and tacking underneath.

If it is found that because of the strain put upon the goods the pleats which go over the edge of the top rail open instead of lying flat, sew these pleats with a fine thread and circular needle, blind-stitching them, as shown in 225B.

Fig. 226 shows an oval back somewhat similar to 221, the difference being that the increased height is provided for by elongating the diamonds instead of adding a fourth row of buttons. In this back, also, it will be noticed that the rows of buttons have been kept on straight lines instead of having the rows follow the shape of the frame, as has been the case with the others we have mentioned. Fig. 226A shows the method of measuring for the covering.

226B.

BUTTONING CIRCULAR BACKS

THUS far the examples we have used in the explanation of pleated buttoning have been those which presented a fairly flat surface for buttoning.

In Fig. 227, the first example here illustrated, we find a chair, the back of which is considerably rounded or concave. Also we notice that the chair back extends around to cover part of the sides, making an abrupt angle at each of the two back corners.

After the back is canvased if the bottom row of buttons is marked following around the chair, as shown in diagram 227A, the distance from button 1 into the corner angle and out to button 2 will be greater than the distance directly across from 1 to 2, as shown by the dotted line.

Presuming that the space from 1 to 3 is four and a-half inches, from 1 to the corner would be two and a-quarter, and from the corner to 2 also two and a-quarter; while the distance across the corner from 1 to 2 would be only about three and a-quarter inches, an inch and a-quarter less than the proper space. It will be seen also that if six inches is allowed for buttoning between buttons 1 and 3 there will be almost double fullness between buttons 1 and 2.

Were it not for the fact that button 5 comes right into the corner it would be a simple matter to make button 2 four and a-quarter inches away from button 1 across the corner in the direction of the dotted line and simply stuff it full as if it were flat; but in this way button 5 would be so deep that it would pull the other upholstery all out of shape. The better plan is to slightly increase the distance between 1 and 2, making it, say, three and a-quarter inches, and mark the covering for a narrow pipe allowing only one and a-quarter inches for fullness instead of the inch and a-half allowed between the other buttons 1-3 and 3-4, etc., on the rest of the back. This will make a narrow pipe shown at X, Fig. 227, but the result will be satisfactory in the completed chair.

Fig. 228 in general form is somewhat similar to Fig. 227, the

main difference being that the upholstering follows around, covering the entire inside, and is stuffed over the top. The frames of these chairs are usually somewhat as shown in Fig. 228A and are canvased as 228B.

It will be noticed that instead of using a stick across the back as a bottom rail on which to tack the canvas a piece of webbing has been stretched across to which the bottom of the canvas is sewn, the reason being that the webbing being flexible allows the back to hollow around instead of remaining flat across, as it would be if the stick were used.

Chairs of this character are usually made with a very heavily over-stuffed top, adding very much to their luxuriousness. To assist in providing this appearance a soft pad is stuffed in canvas over the top of the chair, as shown in Fig. 228C, the pad being made to round over the entire top rail; then when the covering is buttoned over and the top finished with pipes it presents the appearance shown in the finished chair. Where the upholstering is very soft it is well to lead a twine from each button on the top row up over the upholstering so as to draw the fullness into a crevice. This assists in confining the stuffing material by dividing the covering into separate pipes, the depression or crevice taking up the fullness that would otherwise be formed into a pleat. See diagram of left corner, Fig. 228D and of back, Fig. 228G.

Chairs of this kind are usually covered by joining the arm covering into the buttoning of the back, thus in measuring the cover for the back the tape line will be started at X, Fig. 228D, allowing for fullness and tacking, then to 2 pinching up the fullness allowance, to 3, 4, 5, 6, 7 and 8, and then out to X, on the right of the frame with the fullness and tacking allowance added. The surplus to the left of button 1 is cut away, as shown in Fig. 228E. The arm is then joined into the back by turning in the back edge and drawing it into position with the button and twine at mark 1, as shown in Fig. 228F, finishing from 1 to X by

228E.

228F.

227.

227A

228.

228A.

228B.

228C.

228D.

228G.

229.

Above and at the bottom of the page modern German club furniture.

turning the corner of the fabric under to make a pleat.

Where a more-heavily over-stuffed pillow is used, if made in leather it will be apt to wrinkle on a line with the buttons of the top row, so to avoid this the fullness on this line is made into a pleat which runs from button to button, see X-X, Fig. 229. This Fig. 229 is somewhat different to the last mentioned chair, in that it is covered in five pieces, one piece providing for all the space marked 1, 1, etc., two other pieces providing for each of the arms, 3, 3 and 5, 5, and still two other pieces being used to fill in the small spaces marked 2, 2, 4, 4. The covering is divided thus

simply as a matter of economy, for it is obvious that to cover the back from O on one side down to the bottom row of buttons, around the back and over to O on the other side would call for a much greater width than is required for the top of the back. Too much care, however, cannot be exercised in joining these individual pieces, and where the fabric permits, it is much better to cut and sew these joins so that the seam is within the pleat rather than to leave the loose turned-in edges, though in the case of a tapestry or a damask the meeting portion can be blind-stitched with a circular needle.

230.

230M.

230 O.

230A.

230B.

230K.

230C.

230D.

230H.

230E.

230 I.

230G.

230F.

TUFTING SPRING BACKS

THE buttoned pieces thus far illustrated have all been stuffed up on a flat canvas surface and while buttoned upholstery on such a surface is much softer than plain pad upholstery, to obtain greater luxuriousness we must use a combination of buttoning with a resilient spring foundation.

We have already in connection with other pieces, for instance Figs. 215 and 217, indicated the method of springing up chairbacks so that the drawing should be all that is necessary to show the application of the principle to a sofa like Fig. 230. The drawings, however, Fig. 230A to Fig. 230C, will refresh the memory and avoid referring back to the other examples mentioned. In Fig. 230D we start with the back of the sofa sprung-up and canvased. The canvas is now to be the foundation for the buttoning, so it is necessary that the top of each spring should be tightly sewn to the canvas but the stitches which sew the springs to the canvas, as indicated in Fig. 230D, should not catch more than the top coil of the spring and a knot should be tied at all three points on each spring. After this has been done the canvas is marked for buttoning just as if it were a flat level surface, as described in connection with Fig. 223, and the marked back allowing for four rows of buttons will now appear as Fig. 230E.

We have already in connection with other pieces explained the methods of dividing the space of a back for buttoning and of marking the cover with the allowance for fulness between the buttons, so that it should be sufficient here to say that exactly the same procedure is followed where the canvas is a spring foundation as if it were stretched flat and supported by webs to keep it in that condition. It will be noticed in Fig. 230E that we have again numbered the button marks as on former occasions and while we have commenced in the center of the bottom row this is not really necessary because after the covering is marked it is just as easy to commence at one side, Fig. 230F,

as in the middle, but in all the other rows it is essential that the middle buttons be the first put in and then work from the middle to the outside each way, according to the numbers, till all the buttons have been inserted.

When buttoning on a flat canvas foundation without springs beneath the canvas the insertion of the buttons is a simple matter because all of the knots can be tied from the back and the straight slip-knot, mentioned in connection with the tying down of cushions, will answer our purpose. Where, however, the canvas is supported by springs which in turn rest on a close foundation of crossed webbing strands it is practically impossible to work from the back of the canvas.

There are two ways in which the knots may be tied under the cover and practically the same methods may be employed on top of the cover but under the button. The first method is to use a circular needle, as indicated in Fig. 230I. The needle is first entered through the canvas as shown in Fig. 230G, then up through the covering and through the button, then down through the covering again and tied into the slip-knot as shown in Fig. 230H, pulled tightly into place and fastened off by additional knots around the short end of the twine. The other method of buttoning is to use a double-pointed straight needle which is passed down through the canvas, as shown in Fig. 230K, drawn partly out through the webbing so that the top point may be shifted over, and forced back up again through the canvas so as to make a stitch on the under side, being careful not to catch a coil of a spring or a spring twine which does not lie close to the canvas. After the stitch in the canvas has been made, the needle is forced up through the covering at the place marked for the button, then through the eye of the button, back down through the covering and out, to be tied as described above following the course indicated by the dotted line of Fig. 230K. The other plan referred to, that of tying the knot between the button and the face of the covering, employing either a circular or straight needle, follows the same procedure as we have just described with the exception that the start is made from the top of the covering instead of from underneath. Thus the knot is tied after the needle has been passed through the button, as shown in Fig. 230M, and when the button is pulled into place the final knots are tied beneath the button, as Fig. 230O, and the ends clipped close. This latter method is not so satisfactory as the first methods described, but is preferred by some, and for that reason we include it. In all other respects the buttoning of simple backs which have a spring foundation follows the methods described in connection with Figs. 221 to 225.

Side view
of 230 I.

TUFTING SPRING BACKS

231

231A

231B

Our instructions on the upholstering of furniture pieces have now progressed to the point where there must of necessity be a certain similarity between the treatment of the pieces mentioned. Thus, Fig. 231, though differing in general appearance from Fig. 230, follows identically the same principles. The back is webbed the same. The springs are used in the same way and the method of buttoning is the same. No explanation, therefore, should be required for Figs. 231 A, B or C.

It will be noticed by examining Fig. 231 that there are five buttons in the bottom row across the back, the outside one on each side being at the juncture of the arm covering and the back. Therefore, in buttoning a back, as Fig. 231D, instead of inserting buttons at the outside marks, right and left, the covering is simply confined by a twine stitched through and knotted so that when the arm covering is joined into place with a button the covering appears to be continuous and the join is concealed in the pleating, after the manner explained in a former chapter in connection with Fig. 228.

Thus far we have treated these buttoned-back pieces as if they were all upholstered direct in the cover. In the case of a chair such as Fig. 231, however, it would be very much more satisfactory to upholster it first in a fairly substantial grade of muslin or cotton following the method outlined in connection with Fig. 230, but allowing the knotted stitch of twine to hold the cotton in place without employing any buttons. Where this is done it is neither necessary nor desirable that the knots should be between the cotton and the canvas, as explained in connection with Fig. 230H, the knot above the cotton, as shown in Figs. 230M and 230O, minus the button, being perfectly satisfactory and much more easy to employ.

Where the chair is upholstered first in cotton and afterwards in covering it will be found advantageous to turn all the edges of the cotton under, keeping the rabbetted tacking edge as unencumbered as possible, so that the final covering may be tacked, as indicated in Fig. 231E, trimmed off with a knife and gimped.

Though an entirely different chair to the last

231C

231D

231E

TUFTING SPRING BACKS

one illustrated, Fig. 232 shows but a single progressive step beyond Fig. 231. After the seat has been upholstered, as shown in Fig. 232A, the back and arms are canvased, as shown in Fig. 232B, and a pad stuffed with tow or other inexpensive filling is formed where the back and arms join the seat. The purpose of this pad is to assist in defining the outline of the upholstery and also to help fill in the depth of the bottom of the back, which, as will be seen in the cross section diagram, Fig. 232C, is much deeper at the base than at any other part of the back to conform with the curve of the human back.

These pads also serve as supports for the twines which tie down the springs, and to them is fastened the bottom of the canvas by which the springs are covered. The pillow springs, which are used throughout the back, may be tied down independently as we have already explained in Fig. 132B, or they may be tied down in the chair after having been placed as shown in Fig. 232D. After the springs have been covered with canvas as shown in Fig. 232E, they are securely knotted by means of a circular needle and stitching twine and the whole back as well as the two arms lightly double stuffed and the edges stitched as shown in Fig. 232F.

Care must be taken in applying the double stuffing not to interfere with the resiliency of the springs and only a sufficient quantity of stuffing is used to give the required form. Moreover, greater softness is provided if an extremely light and pliant filling be used, such as curled hair.

The double-stuffed chair is now marked for buttoning and tufted, either in cotton or direct in the cover, as has already been described in connection with other spring-backed buttoned pieces. It will be noticed that no attempt has been made to make either the arms or the back with spring edges. If this should be desirable, however, it is a very simple matter to accomplish and the reader is referred to the method described under the chapter entitled "Springing Up," which very fully covers all the necessary particulars.

Buttons do not appear in the illustration, Fig. 232G, because this illustration shows the appearance of the chair being upholstered in cotton, a simple twine stitch being all that is necessary to hold the tufting. This is the method employed for all pieces of over-

stuffed furniture similar to the one we have illustrated. We have not, however, attempted to show the actual number of springs that would answer for all purposes, merely giving the number usually shown in standard pieces. A larger number could be employed or a lesser number, according to the value of the piece and the desired comfort it is intended to give. The same chair might also be upholstered by dispensing with the springs on the top of the arms and on the top roll of the back and getting the same built-up effect by a stuffed-up roll, but this, of course, would not give the same soft surface nor the same durability, but the method is mentioned as a cheaper plan of producing a similar appearance. Davenports, Chesterfields and large over-stuffed sofas are upholstered in the same way as chairs of this type and it will therefore not be necessary for us to duplicate the instruction in connection with these other pieces, as it has been our purpose from the first of this book simply to explain methods rather than to show the actual treatments of a large number of individual pieces, believing that the workman who has thoroughly mastered the necessary methods will be readily able to apply his knowledge to any style of furniture which he may be called upon to undertake.

232 G

232

232 A

232 B

Arm detail.

232 D

232 E

232 C

232 F

DETAILS OF SPRING-BACK UPHOLSTERING.

"The earliest chairs of the Egyptians and Romans were only temporary resting-places * * * * * couches, beds and divans being more used than chairs."

CONTOUR AND FORM

WE HAVE now reached the point where we deem it wise to explain the principles which govern the formation of over-stuffed furniture. The frame-maker cannot always be depended upon to provide a foundation that accords strictly with human necessities of comfort. He must by the very character of his business confine his efforts for the most part to standard types.

If all people had the same general proportions, height, weight, etc., standard types of furniture would be universally acceptable but humanity varies not only in its anatomy but in its preferences as well, and so the frame provided by the cabinetmaker has got to be built up in such a way as to fit the preference and the form of its future possessor.

It is not our purpose to enter into a minute discussion of anatomy but simply to point out the general requirements of an upholstered piece of furniture. It would have been possible to have treated of this phase of upholstering at an earlier stage but up to now the pieces treated have to a large extent been such as were limited in their treatment to the design embodied in the frame, but with spring-back stuffed-over pieces there is hardly any limit to what the upholsterer may accomplish by building up the original frame to conform with his own conception of comfort.

As a model of comfort we can do no better than to refer the modern workman to the chairs and couches of the early Greeks and Romans. These were made in shapes that actually conformed to the recumbent body or were so soft that the body could sink into them and find its own comfort. The main things to consider, therefore, are the proportions of the seat and back and either a pliability that will give with the body or a contour that fits the human form.

Nothing is more tiring than a chair which supports the occupant in an uncomfortable position. As the average person is seated the line of the small of the back is very much in advance of the line of the shoulders, and support at the shoulders only, as is shown in Fig. 233 A, is not sufficient. The small of the back needs support also. Compare with this Fig. 233 which shows an outline detail of a piece which conforms to the position of the sitter, the outline of this chair being approximately the outline of the upholstering of Fig. 232 illustrated in a former connection. The arms also of such pieces must receive careful consideration and must be built up to such a height that they will provide a comfortable resting place for the elbows under ordinary use. In our illustrations the arms of Fig. 233 have been built up to support the elbow in a com-

"With spring-back over-stuffed pieces there is hardly any limit to what the upholsterer may accomplish by building up the original frame to conform with his own conception of comfort."

tion of the sitter, the outline of this chair being approximately the outline of the upholstering of Fig. 232 illustrated in a former connection. The arms also of such pieces must receive careful consideration and must be built up to such a height that they will provide a comfortable resting place for the elbows under ordinary use. In our illustrations the arms of Fig. 233 have been built up to support the elbow in a com-

233

233A

fortable posture while those of Figs. 233A and 233B are much too low, necessitating a stooped position in order to be used.

The old Greek chair shown in Fig. 233C was probably the prototype of our modern "sleepy hollow"

rest as well as a back but with the Romans as with the Greeks chairs were only temporary resting-places, couches, beds and divans being more used than chairs.

The illustrations showing the faults to avoid better indicate the points to be considered than any advice that we can give, and particularly where furniture is built for future sale and not made to order, anatomical comfort is one of the main considerations.

and illustrates the type of upholstery that is soft enough to allow the body to sink into it as it conforms to the recumbent position of the user.

The earliest chairs of the Egyptians and Romans provided a back that was low enough to form an arm-

Early Greek chair.

Early Greek chair.

233B

233C

234

234A

234B

234C

234D

234E

234G

Method of tying pillow springs
in box explained previously in
connection with Figs. 132 and 132B.

234H

DETAILS OF IRON-BACK UPHOLSTERING.

235

235A

235B

235C

235D

236D

DETAILS OF IRON-BACK UPHOLSTERING.

See text on opposite page.

234F

234I

IRON-BACK UPHOLSTERING

OUR next consideration relates to an entirely different type of furniture than anything hitherto described and while the ultimate result appears to be the same as some of the pieces already mentioned the method of upholstering is decidedly different.

As will be seen by referring to the chair frame, Fig. 234, this type of furniture has only a wood base, the entire upper structure being composed of iron rods. The seat is upholstered in the same way as the seat of any over-stuffed piece of furniture and will appear as Fig. 234A. The upper structure of the chair, that is, the back and arms, offers no place for tacking. Everything, therefore, that is attached to it must be sewn either to the iron or to the canvas with which the iron is covered. In Fig. 234B the back and arms have been covered on the inside with canvas stretched tightly so as to conform to the shape of the frame and sewn to the iron in such a way that there is no possibility of its pulling out of shape because of subsequent manipulation.

It is intended that this chair should be provided with a spring back and it is made extra deep to allow for the depth of the springs. To assist in filling up the space from the bottom row of springs to the seat a pad similar to that described in connection with Fig. 232B is formed, as Fig. 234C, sewn at the bottom to the wire which goes around the back just above the seat while the top edge is sewn to the canvas with which the back is covered. This pad not only serves to fill the hollow space where the back joins the seat but it also provides a place to which the springs of the back may be tied. See Fig. 234D.

These pillow springs should first each be tied down to the proper height, about four inches, as described in a former chapter in connection with Fig. 132 and after being sewn to the canvas they are also tied by light over-twines as Fig. 234D, the edge springs being tied so as to form a spring edge around the back from one arm to the other.

We have already described the method of forming a spring edge by attaching an edge wire to the springs and the same procedure is followed in this case but a much smaller wire should be used than that generally employed for the spring edge of a seat.

The next stage is the covering of the springs with the canvas shown in Fig. 234E, taking care in the sewing of the canvas to the edge wire and also in sewing the edge of the canvas to the solid iron frame of the back not to create a tension that will reduce the spring edge which should be from three to four inches high according to the size of the piece.

After the back is entirely covered with canvas the tops of the pillow springs are knotted to it as indicated in Fig. 234E. The bottom edge of the canvas which covers the springs does not show in this illustration but it is sewn either to the pad already mentioned or drawn through between the pad and the seat and sewn to the bottom wire of the back. The final upholstering of the chair, as shown in Fig. 234F, is carried out along the lines already described in connection with other spring-backed pieces, the only difference being that whereas in the others it is possible to tack the goods to the chair frame, in this case everything has to be sewn.

The same frame may be made more luxurious by

236

236A

springing up the top of the arms, putting two or three springs on each in such a way as to make the spring edge, shown in Fig. 234G, canvassing as shown in 234H, and then upholstering in the regular way, the finished chair having the appearance of Fig. 234I. The left arm of the last mentioned figure is shown upholstered only in the cotton, the stitches indicating how the edge is sewn to the canvas while the opposite arm shows that the covering is carried around the edge and sewn to the outside where the lining will cover it. It is possible to make a more finished appearance by sewing a separate band on the front of the arm but as all matters pertaining to banding will be covered in a subsequent chapter we will defer discussion of the method until we reach that point.

The upholstering of Fig. 235 follows very closely the method described in connection with Fig. 234. In the example now under consideration, however, we have suggested double stuffing the back, stitching the

edge all around and also stitching the edges of the arms.

This double stuffing is, of course, for a chair of this kind, made in very soft material, preferably hair, as this type of chair is noted particularly for its comfort-giving qualities, and even though double-stuffed the aim throughout should be to keep the upholstering soft and yielding.

Fig. 236, a slightly different frame, follows a similar method of upholstering but instead of a spring edge around the back we have indicated double stuffing and a fairly high stitched edge as best calculated to retain the shape of the chair in the finished upholstering. What we have remarked concerning the double stuffing of Fig. 235 applies also to the double stuffing of this chair, particular care being taken to avoid creating a foundation that will be hard and stiff. These chairs are so much like those recently de-

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237A

237B

scribed that the illustrations require no additional text to elucidate the method of upholstering.

The chair shown in Fig. 237 is so like 234 and 235 as to be very easily comprehended without further explanation. Fig. 238, a stuffed-over chaise lounge, also follows the same principles of upholstering as the other stuffed-over pieces we have described. Fig. 239, though somewhat similar, introduces a combination of tufting, the main back and arms being diamond-tufted while the pillow is biscuit-tufted.

As will be seen in Figure 239B, showing the chair with the back sprung up and canvased, there is no difference in the height of the springs under the biscuit-tufted pillow, and if desirable the diamond tufting could be carried right up over the back in the same manner as with the other chairs we have illustrated. The shape of the frame, however, lends itself to the variation of tufting that we have indicated, and by

using a deep biscuit tufting a very pretty effect is produced. The details of biscuit tufting have been thoroughly covered in former chapters and need not here be described, but it is well to bear in mind that the more closely a fabric is buttoned the harder the upholstering will be, and with a biscuit-tufted pillow like the one illustrated, it will be necessary to use the softest of filling in order to maintain the general comfort of the chair.

There is a large variety of iron-back chair frames, but the form of upholstering is so definitely suggested by the shape of the frame that it is unnecessary to give further details concerning them.

There is, however, another form of chair with the construction of which the upholsterer has a great deal more to do, the type of chair known as a wire-back or Turkish chair. To construct this type of chair the upholsterer starts with a plain wood base and on

237C

237E

237D

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240B

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238A

240A

238B

240C

238C

239

239A

239B

this he builds the superstructure of steel wire, which gives both form and support to his upholstering.

In Figure 240 we show first the general outline of the wire-back chair. Each upright of the back superstructure is composed of steel wires cut to the definite length of the upright. In Fig. 240A, the method of attaching these wires is illustrated. Holes are bored in the top of the frame, the exact size of the steel wire, which after being cut to length is driven into the holes and the wood made to bind the wire by driving two or three stout tacks beside the wire. This causes the fibers of the wood to swell and crowding them against each wire holds it securely in place. In addition to these cut uprights there are longer uprights, one or two, according to the weight desired, and another long wire which passes through a hole bored in the side of the frame. This wire is bent up close to the frame as shown in Fig. 240B, and is used with other wires in the forming of the outline of the frame.

The building of chair frames of steel wire is one of the most difficult things of the upholstering trade. The wire is not easy to handle, particularly if made of spring steel, and while soft iron wire is much easier to handle and will make a fairly satisfactory chair, there is not the same resiliency and comfort-giving quality produced by the steel. After the wires have all been bent to form, and such additional wires as may be necessary to make the edge of the required thickness have been put into place and tied at intervals, as indicated in Fig. 240C, the whole wire superstructure from beginning to end is tightly bound by wrappings of soft cord, wrapping, say, a half a dozen turns of the twine, and then holding it with one hand while the other twists it tighter and tighter around the wires, binding them as close together as is possible.

The finished chair will have the appearance of Fig. 240D, and if properly balanced and well shaped so as to produce the correct pitch to the back, a splendid

type of chair results. The upholstering of a wire-back chair follows in all respects the same method as for iron-back chairs such as we have described, and there is practically no form, no shape of stuffed-over furniture which the clever manipulator of wire cannot reproduce in the wire frame. Because of the strain on the wood base a specially constructed base is required, and the joints in some instances may even then be reinforced with braces.

We have now followed progressively the upholstering of various pieces of furniture commencing with the most simple and gradually working up through the more difficult pieces until we have reached the most luxurious and complicated types. It must be borne in mind, however, that we have not attempted to dictate the style of upholstering exclusively appropriate for each class of furniture but rather to elucidate principles so that the workman, familiar with the intricacies of the different methods, will be able to suit the style of upholstering he desires to any piece of furniture which may be presented to him.

239C

241B

241C

241

241A

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242

246

243

242A

246A

Welt details.

245A

Sewing on plain band.

244A

244B

Plain band detail.

245

245B

247

247A

Wire-back chairs showing intricate styles of banding.

BANDS AND BANDING

BANDS, so called because differing either in color, material or form from the main body of an upholstered piece, are of two different kinds, those joined to the main covering and attached at the same time, as the band on the back of the chair shown in Fig. 241, and bands which are applied separately, being of various sorts, as described hereafter. The band shown in Fig. 241A is planned with the covering of the back. It is simply a strip of a different color or of a different material joined up with the main material so as to cover the entire back, and whether the back is first covered in cotton or is upholstered direct in the covering, it is necessary that the seam which joins the band to the covering should follow a straight line across the back. This is easily governed by measuring down on each side of the frame the distance to be covered by the band and by keeping the seam rigidly to the marks thus indicated. If it is desired that the seam across the back should be sunken, this is accomplished by stitching through the back with a long needle, as indicated by Figs. 241B and 241C, straight stitches on the face of the back and cross stitches on the back of the canvas, as indicated in Fig. 241C. These are pulled tight while at the same time the face of the back is pressed or pounded so as to form a depression along the line of the stitches which are later covered by a cord.

Applied bands are usually stuffed, and the main classes are known as shirred, pleated or buttoned. The shirred band is used only on

very cheap work and with light materials. It is shirred independently and then sewn into position as indicated in Figs. 242 and 242A. The plain band shown in Fig. 243, made with a welt to avoid the use of cord, is sewn to the welt independently on a machine and then applied with a needle by hand, but the band shown in Fig. 244B is pleated at the same time it is sewn into position on the front of the chair. This is accomplished by taking the stitch first into the edge of the chair the length the pleats are to be apart, then pass the needle into the material of the band so as to come through again to the surface, skip a portion and again pass and repass through the material so as to form the pleat shown in Fig. 244A. Of course, it will be appreciated that the pleats must not be more than about $1\frac{1}{2}$ inches apart if sewn in this way, as if farther apart than this another stitch would need to be taken between the gathering stitches.

The buttoned band, details of which are shown in Fig. 245, is a better band to employ on a deep front than the pleated band for the reason that the buttons help support the stuffing. The front of the seat is divided off into equal spaces, usually from four to six inches, as shown in Fig. 245A, making a mark where the button is to go and also other marks on the edge of the seat and on the edge of the frame immediately above and below the button marks. The mark on the edge of the seat indicates where the pleat is to be turned, similar to the pleat made in sewing on a pleated band, and the mark on the edge of the frame indicates where the lower pleat is to be made in the

BANDS AND BANDING

finishing of the band. By referring to Fig. 245, it will be seen that in addition to the stitch which confines the pleat where the mark is indicated, another stitch is required to be taken between the marks, and in taking this intermediate stitch the goods are allowed to turn out a little so as to provide a greater fulness. Thus, for instance, if at the pleat mark a half inch is turned under, only a quarter of an inch of goods is turned under when the next stitch is taken, then at the next pleat mark the goods are turned in a full half inch again, this manipulation helping to provide fulness which is required in making the necessary swell from button to button.

In stuffing up pleated bands, a soft stuffing must be used and the band is only sufficiently filled to hold the pleats in shape. They are not rigidly pressed down but by making the bottom pleat in the goods half way between the top pleats, a peculiarly loose and soft appearance is produced, as indicated in Fig. 244B.

In stuffing up a buttoned band, on the contrary, the band is filled sufficiently to swell out all of the fabric between the buttons, while the pleats are tightly turned and pulled smoothly down to the tacking edge.

After the band has been entirely sewn along the edge of the seat, the fabric is pulled tightly where pleated and the buttons sewn in one by one on the marks indicated, after which the band is stuffed and finished, as shown in the detail 245B.

All bands that are stuffed up without buttoning should have the bridling stitch shown in Fig. 246 as a help in confining the stuffing. The purpose of the bridling stitch has been explained in former chapters and the illustration should be sufficient here to show its use.

The herring-bone band shown in Fig. 247 is also a buttoned band and is marked in much the same way as the one illustrated in Fig. 245. The buttons, however, are closer together and there is this difference that the buttons are the first things put in. The goods are marked, allowing about $1\frac{1}{2}$ inches extra for fulness between the buttons and the buttons sewn into place forming a series of pipes. These pipes are stuffed up and instead of the pleats being straight up and down from the buttons they swing over at top and bottom to the mark above the next button. The illustration Fig. 247A shows the various stages.

Types of wire-back chairs. Pleated bands.

248C

248A

248B

248

CORDING AND LINING

IMMEDIATELY following the banding of furniture, the next consideration will be the concealing, by means of a furniture cord, of the place where the band is sewn to the seat. Furniture cords are made for the most part in standard styles and sizes and wherever the cord is used on the surface of upholstery where it is liable to receive any considerable amount of wear, it must be firmly sewn to the upholstery itself by concealed stitches. The illustration of the chair seat, detail Fig. 248, shows the commencement of the process of cording the front of a chair.

When the cord was cut by the scissors after it had been previously used, a knot should have been tied in the ends of the cord. If this has been done the knot can now be untied, the strands of the cord straightened out and the ends bound together by some of the silk wrapping which can be easily unraveled from one of the cords. This process is indicated in Figs. 248A and 248B. Now a tack is driven through this bound part of the cord and the cord attached to the tacking block at the corner of the chair as at X, Fig. 248. Next, with the twine and circular needle a stitch is taken in the front of the chair just above the band so as to bring the needle out about one inch distant from the tack which fastens the cord. A knot may be tied in the end of the stitched twine which will be concealed by the cord, or a very common practice is to tack the end of the twine also to the tacking block and then by taking a close stitch into the band and out through above it as shown in Fig. 248C the

twine is securely fastened and the tack concealed later by the gimp. After the first stitch has been taken in the seat the cord is slightly untwisted at the point where it will cover the stitch and the needle passed between two strands of the cord so as to take a stitch around one of them, as Fig. 248D. Care must be taken not to pierce the strand nor to unravel any of the silk by which the strand is covered. Next the needle is re-entered into the edge of the seat at a point about $\frac{3}{16}$ of an inch from where the twine emerges and brought out $1\frac{1}{2}$ inches distant, making the stitch in the seat as shown in Fig. 248E. As the twine is then pulled so as to tighten the previous stitch the cord is twisted to its natural condition and also pulled taut, at the same time the stitching twine is pulled as indicated in Fig. 248F. If this is carefully done, the cord will be attached firmly without there being any visible stitches to indicate that it is sewn. It requires a little practice to know just where the twine should pass around one strand of the cord but this can readily be acquired and it soon comes natural.

Where it is necessary for the cord to follow a curved line instead of running straight across, stitches will have to be taken more frequently than we have indicated and it may be necessary for greater security to enclose two strands of the cord in each stitch. These are things, however, which can readily be worked out by following the instructions we have already given.

In a deep recess across a soft back or where

248E

248D

248F

250

250A

Back-tacked without cardboard.

250C

Edges turned under and tacked.

250B

Back-tacked with cardboard.

251

252

252A

CORDING AND LINING

cords are used to draw a soft pillow into scallops it is not usually necessary to stitch the cord as the fact that it is recessed and drawn taut in such cases serves invariably to hold it in place. Care should be exercised to make sure that all the ends of cords whether tacked or sewn, are securely fastened so that subsequent wear will not be likely to dislodge the fastening.

Following the finishing of a piece of furniture in sequence next to the cording comes the lining and for the explanation of the lining of the outside backs and arms we have chosen a student's chair as the simplest piece with which to commence. As indicated in Fig. 250 the outside arm of the student's chair is not a difficult part to line. It is only necessary that the lining should be cut sufficiently large to cover the space and that it should be pulled smoothly each way and tacked into position. It is not, however, practical to run a gimp across the arms, so the lining where it attaches to the upper arm is back-tacked as indicated in Fig. 250A, and by tacking through a narrow strip of heavy cardboard, leaving a straight edge at the top where the cover will turn down over it a very neat effect is made possible, as indicated in Fig. 250B. This same method of using cardboard may be used in a great many other cases where a fabric is to be back-tacked and afterwards turned down to make a finished edge. The cardboard prevents the covering from drawing between the tacks and maintains an even edge where the fabric is turned. The outside arm of the chair under discussion is gimped after the lining has been trimmed and the gimp finished under the lining of the outside back. The outside back of a cheap chair is not usually gimped, the fabric being simply turned neatly under all around and stretched reasonably tight so as to conform to the shape of the back. See Fig. 250C.

Where the outside of a show-wood back follows a curving, circular or otherwise irregular shape, it may be difficult to turn in the edges of the lining, in which case the tacks are inserted sufficiently close to smooth out all wrinkles and the surface trimmed off as shown

in Fig. 251, after which the raw edges are covered with gimp. It is not practical to turn under the edges of very thick covering or of leather, but it is false economy to spread the tacks too far apart, trusting to the gimp to cover any fraying threads which may develop.

On all of the better class furniture pieces it is well to insert a stuffing material between the inside upholstery and the lining, both to insure a round contour in conformity with the shape of the chair and also to prevent the perforation of the lining in the event of an accidental pressure against it.

Where a filling material is used it is generally picked out very lightly and laid into position, either confined with bridling twines or not, as desired, worked smoothly into shape by the hands and secured by an under covering of muslin or by the lining itself. There are no peculiar difficulties to the lining of a piece of ordinary furniture but the lining of wire and iron-backed furniture requires considerable manipulation. The chair is disposed face downward on trestles, as indicated in Fig. 252, the filling material laid on and secured in place and the lining or under-muslin of the back temporarily secured in position. Where it is not possible for the entire outside lining to be taken from the single width of material, the arm linings must be joined to the back lining by sewing.

It is usual to pin all together in place on the chair in order to determine just where the seam will be required and to secure the proper shape of the lining. The process can be readily followed from the illustrations, showing the various stages from Figs. 252 to 252C. After the lining has been fitted into place, then removed and the seams sewn on the machine, it is again pinned into position on the chair, all the edges which follow the upper frame turned neatly under and sewn into place by blind stitching. The bottom around the frame of the chair is tacked on the under side of the frame and afterwards covered by the lining which covers the bottom of the chair.

252B

252C

The pattern being small is not destroyed by the upholstering. A plain fabric would be very much better.

Pattern too large and too much broken.

Pattern decidedly too large.

A fairly good choice; the stripes lend themselves to the form of the chair, not destroying its outline.

Too light in appearance for such a heavy form of chair. Not desirable.

Suitable for bedroom, a good choice.

Pattern too large, badly broken by lines of chair.

Not a good choice. Too scattered and spotty looking.

Also a good choice for bedroom in cretonne or light-weight texture, for living-room or library in heavy tapestry and dark colors.

An undesirable combination. Pattern too large and broken, spoiling form of chair.

In heavy fabric suitable for a library or living-room.

A desirable combination for a bedroom. Not at all suitable for dining-room or library.

A COMPARISON OF FURNITURE AND FURNITURE COVERING TYPES.

See text on the opposite page.

In dark related colors an all over pattern of this character might be desirable but in light colors of sharp contrast it would be impossible.

Slightly better but still too much broken.

Pattern too much broken.

A running pattern of this description which seems to go every way is more desirable for a chair with many broken lines of upholstery such as this than any of the other patterns we show.

CHOOSING THE COVERING FOR FURNITURE

IN THE choosing of upholstery coverings either for new furniture or for reupholstering it is essential that the workman should consider the type of furniture on which the coverings are to be used.

Where a piece of furniture has distinct period character there is practically no choice left except to follow period dictates, but for the vast bulk of everyday upholstered furniture possessing little in the way of period style it is largely a matter of suiting the fabric to the general form and style of the furniture itself.

Large upholstered surfaces do not lend themselves well to the use of stripes or of intricate small patterns. They look well in plain fabrics, in unobtrusive diapers or in massed florals. The small dainty piece with slender woodwork is simply smothered if covered in massed florals, but looks well in small diapers or in well-balanced stripes.

Tufted furniture should not be covered with a pronounced pattern that would be confused by the tufting, nor with a clearly defined stripe, because no matter how carefully the tufting is done the pleating will make the stripes appear crooked and the work will always be un-

satisfactory. On the other hand, a small diaper pattern looks fairly well on a large tufted piece, or a large floral so thoroughly covered that the pattern, though lost in the pleating, still retains its general color effect and balance.

Large pieces apparently lose size by being covered with large-patterned fabrics and look larger in plain fabrics or those having little repeated figures over all their surface.

These considerations are not easy to explain to a customer unless one has something tangible which will show comparisons, the chair itself with different

coverings, or, failing in that, illustrations which show the different applications.

We have taken a number of everyday pieces of furniture and have applied to them different styles of covering in order to show the effect. An examination of these illustrations will not only show the workman the absurdity of picking certain patterns for chairs which they do not suit, but the series will form a handy reference for the purpose of advising his customer and obtaining her preference. We have not illustrated plain fabrics, as it may be taken for granted that they are suitable for all kinds of furniture.

Pattern too large, completely overmastering the shape of the chair.

Pattern too light and too much broken.

Pattern not suitable, breaking badly in the upholstery. For this type of chair a narrow stripe or perfectly plain material would be much more desirable.

PLANNING THE COVERING

THE planning and cutting of furniture covering are important branches of the business which every upholsterer should master. Considering that materials are handled which very frequently run up to \$25 a yard, the waste of even a half inch on each cut may mean considerable loss. To measure for the covering of a show-wood seat, a tape line is held at the back of the frame, as X, Fig. 254, drawn up across toward the front and, if the seat is to be covered without banding, down to the front rail and the measurement noted. The width measurement is taken in the same way and it is best to transfer these measurements to paper and not trust to memory for the cutting. Arm and back measurements are taken in the same way, allowing only a sufficient surplus to insure the possibility of the covering being tacked securely so as to prevent the fraying out of the edges.

Where the front of a seat is to be banded, naturally the covering is cut so as to cover just nicely over the front edge as Fig. 255. In the measurements shown by the tape line, Fig. 254A, the chair seat measures 28 by 28 inches. Thus it will be seen that a twenty-seven-inch fabric will be too narrow as will also the half width of a fifty-inch fabric. To avoid wasteful cutting, therefore, the fabric may be pieced out to twenty-eight inches wide by joining small strips on each side of the main portion and as the seams do not show on the top of the seat they are not objectionable. See illustration, Fig. 256. Where the covering is a patterned material, the seams must absolutely match, otherwise the join would be conspicuous because of the broken pattern.

Wherever seams on plain material are necessary, and it is impossible entirely to avoid them, particular

care should be taken that they be properly sewn and thoroughly pressed so that they will be as inconspicuous as possible. Where the material carries a definite figure the fabric should be matched at the seams on plain upholstery while for tufted upholstery the seams are less conspicuous if made where the fabric is pleated, as described in connection with Fig. 227.

Where certain portions of the seat of a chair are covered for a considerable distance by the upholstery of the back and arms, it is customary to cover with the real covering material only the portion of the seat which is exposed, piecing out the balance under the arms and under the back with a cheaper material. In measuring for the covering an allowance is made for these parts that are to be pieced out and a considerable saving effected in the material used. Illustrations, Figs. 258 and 258A, indicate the method of allowing and of piecing out the covering.

In planning for the covering of a seat or back the covering is cut so that the pattern will come in the center of the seat and in the center of the back. This is imperative because otherwise the balanced appearance of the furniture would be destroyed. Where the pattern is a medallion or floral bouquet or any other form of motif which has a definite top and bottom, the pattern is so disposed on the seat that the pattern runs toward the back of the chair and the covering of the back is arranged so that the pattern shall run toward the top. This is advisable not only because of appearance but because the majority of fabrics are woven so that the warp threads run lengthwise of the goods and these warp threads are invariably the stable threads of the material, not only possessing the greatest tensile strength but also repre-

PLANNING THE COVERING

sending by far the larger portion of the weight of the material. By running the warp threads from front to back and from bottom to top on a piece of furniture, the wear is in the direction of the warp threads and is very much less destructive than it would be if it were across these threads, as would be the case if the goods were put from side to side instead of as we have suggested. Where there are small pad arms, for instance on an arm-chair or on a sofa, in the effort to economize, the upholsterer sometimes runs the covering across the arm rather than from front to back. This is false economy for while it may save in the first covering of the piece the material so disposed soon wears out and the entire piece has to be recovered.

Plain material is sometimes put crosswise as well as lengthwise but the greatest service is produced by following the plan suggested, of running the warp threads with the direction of greatest wear; viz., from front to back and from top to bottom.

There is one character of covering which contradicts this plan and we believe one only, hair cloth. By reason of the limited length of the hair fibers it is only possible to make hair cloth in certain widths from ten inches up to about thirty-two. The warp threads of cotton can, of course, be any length but because of the stiffness of the hair weft and because of the nature of the weaving the cotton warp threads are allowed to lie to the back of the fabric and as the principal wear comes on the hair, hair cloth is cut so that the warp threads run crosswise and the weft hair threads from front to back.

Pile fabrics such as velours, velvets, plushes, etc., are cut and put on so that the nap of the goods brushes down and to the right. By brushing we mean that

the natural lay of the nap is in this direction. In some materials, particularly in fine mohair plushes, the nap may not show any tendency to lie in any direction but may appear to be perfectly upright. Where there is any difficulty in determining the direction of the pile, spread the fabric out on a table, the seat of a chair or other smooth surface, place a dime flat down on the surface and strike the cloth several quick, sharp blows with the open palm of the hand. It will be noticed that the coin is made to travel because of the vibration, but instead of traveling in a straight line with the thread of the fabric it seems to travel in two directions, or rather, slightly on the bias. This is the direction in which the nap lays. Therefore, we say that the nap should brush down and to the right because this will be found to be invariably the case. Where there is any doubt about its brushing to the right or to the left, it is not an important consideration but it should in every case brush down.

A coin will only travel in the direction in which the nap brushes and it is a safe rule to follow in testing for furniture covering.

The theory of brushing pile goods to the front on the seat and from top to bottom on the back is sometimes contradicted because it brings about a slight variation in shade due to the light striking the fibers at different angles and in the attempt to bring the shades into better harmony the upholsterer sometimes is persuaded to depart from the rule concerning the direction in which the pile should run. This is not advisable, for while there may be a slight difference in shade, particularly when the goods are new, the difference of shade becomes less noticeable as the furniture is used and the fabric will wear considerably better if the rule we have quoted is followed.

Types of wire-back chairs.

Fig. 3.

Fig. 1.

Fig. 2.

THE HANDLING OF HAIRCLOTH

SO LITTLE haircloth has been used comparatively in the last twenty-five years that the average upholsterer has not only not had experience in its use but has not been disposed to exercise his native ingenuity in trying to develop its employment along lines for which it is not definitely demanded.

Fifty years ago haircloth was much used and highly appreciated and practically every upholsterer was required to be familiar with its manipulation, but with its disappearance from general use succeeding generations of upholsterers have known less and less of the material and the peculiar conditions attendant upon its use. In view of the fact that haircloth in fancy woven patterns is now being produced in a variety of art colors that make it suitable for a wide range of purposes, it is high time that upholsterers

should thoroughly acquaint themselves with the possibilities it offers.

Perhaps, and rightly so, haircloth will have its widest use for plain upholstery because in this form it presents the greatest resistance to wear and is most easy of manipulation. There are, however, certain styles of chairs, settees, etc., which are improved in appearance by the use of buttoned upholstery and unless haircloth can be used in this form recourse must be had to some more pliant material. In order to demonstrate the possibilities of haircloth for buttoned upholstery we have had prepared a series of examples which we illustrate herewith. In the case of Fig. 1, probably the most difficult form in which haircloth can be used, i. e., pleated from button to button, the only point for the upholsterer to bear in mind is that haircloth offers a decided resistance to pleating and on

Diagrams showing the details in connection with the upholstering of the backs of Figs. 2 and 3.

GIMMING

this account the stuffing will have to be more firmly packed than under a pliable texture and a slightly less allowance for fulness will be required. Where ordinarily an inch and a-half would be allowed, with buttons three inches apart, one and one-quarter inches will be found to be sufficient for haircloth.

With the herring-bone oval-back illustrated in Fig. 2, little difficulty should be experienced because the pleats in this case are not formed across the hair but across the pliable cotton warp. The method of turning the pleats can be readily seen in an examination of the detail drawing.

The circular-back, Fig. 3, in common parlance called the wheelback, is not difficult of accomplishment but will probably require considerable practice

before one becomes expert. It is made with a single piece of fabric, the fulness being provided by cutting a circular hole in the center of the cloth.

For instance, the example illustrated measures completed ten inches across, and for the covering a piece of haircloth fourteen inches square is used, from the center of which a four-inch circle has been taken. The back of the fabric is marked to correspond with the marking of the back (See diagrams) so that by bringing the lines on the marked fabric over the corresponding lines on the back, ample fulness is provided and the raw edges where the circle has been removed meeting in the center are fastened off with a gathering twine and covered with a button.

GIMMING

THE last operation of the upholstering of a piece of furniture is generally the gimping, which, on show-wood pieces, is sometimes left until the frames have been cleaned up and polished after the other upholstering operations. There is little of a technical character concerning gimping that needs to be explained, but in order to make our treatise complete we give the principles which may be readily followed.

Care should always be taken so that the gimp, where it is intended to cover tacks that join finished wood, should lie wholly within the rabbet, as Fig. 253, and not overlap as shown in 253A. Round-headed gimp tacks are used and except where the gimp is intended to follow a curve the tacks are placed in the center of the gimp and at distances of about three to six inches.

Where a square corner is to be turned, as shown at Fig. 253B, two methods may be employed. The most desirable method is that shown in Fig. 253C. The gimp is carried out to the corner and turned back so that the doubled portion just reaches the bottom of the rabbet at X, 253D, then a small, flat-headed tack, say two ounce, is driven through the doubled portion in such a position that when the gimp is drawn, the tack will force the material to turn a biased pleat, running down to the corner as shown in Fig. 253C.

With a little care one is soon enabled to determine the position for the flat-headed tack and no other tack is necessary to hold the pleat firmly in position, the strain of the gimp being all that is required. A more simple method, though not quite so sightly, is shown in Fig. 253B. This requires the use of two gimp tacks; the first one is placed in the corner, as shown in the diagram, the gimp is carried

around at a right angle from its former position, and the pleat is formed and confined with another gimp tack driven through the biased pleat as indicated in the diagram.

Where gimp is required to lie flat around a curve like, for instance, the back of Fig. 251, it will be necessary to keep the gimp tacks near the outer edge of the gimp so that the inner fulness caused by swinging the gimp around a curve will be disposed in very small pleats which will not be conspicuous. See 253E. It will be necessary to keep a fair tension on the gimp from tack to tack but not sufficient to cause it to draw away from the curve of the rabbeted edge.

Where there are reversed curves, a condition which is very frequently found on carved sofa backs, it is necessary to dispose the gimp tacks so that they will follow the outside edge of each curve, crossing the gimp from one side to the other as the curve changes, as indicated in Fig. 253F.

On very fine furniture it is sometimes advisable to attach the gimp without showing tacks and this can only be done successfully by using paste or glue and it is not always satisfactory, because no matter what adhesive substance is used there is the danger of its drying out and permitting the gimp to come free. Where an adhesive substance is employed, however, it is necessary to tack the gimp temporarily into position during the length of time it requires for the adhesive to dry, and for this purpose we have found it best to employ a smooth, slender tack that will make a very small puncture. Four-ounce shoe tacks are excellent for the purpose, being both sharply pointed and of good metal. It is hardly necessary to say that the adhesive should be spread very thinly and it should be of such consistency that it will not run through the gimp and show on the surface.

253C

260

253B

253C, enlarged detail

253

253D

253A

253B, enlarged detail

261A

253F

254A

253E

253D, enlarged detail

REPAIRING AND POLISHING

THE retail upholsterer finds that a considerable portion of his work has to do with old furniture rather than with new and while it is possible to strip an old piece of the upholstery and reupholster it complete, there are sometimes ways of economizing both in time and in material. For instance, when an armchair such as Fig. 259 requires reupholstering because the webbing of the seat has given way, it need not always be necessary to strip the entire seat. In the illustration mentioned, the appearance of the chair would indicate that the covering is in good condition and that the webbing only requires replacing, the bottom of the chair usually presenting the appearance of Fig. 259A.

The first operation is to cut the twines which sew the bottoms of the springs to the webbing. This leaves the springs free from the webbing but yet tied at the top by the spring twines which were first used to tie them down. The old webbing is now stripped off, giving the appearance of 259B, and new webs are stretched so that when the springs are straightened they will be properly placed on the intersections of the new webbing. See detail Fig. 259C. After the seat has been entirely webbed insert one hand between the interstices of the webbing and straighten each spring into the position where it belongs and with a circular needle passed through the webbing, around each spring and back, sew the springs into their proper position on the webbing, giving the appearance shown in Fig. 259D. Of course, it is only advisable to reweb a chair in this way when the upper structure is in good condition. If the canvas over the springs is broken or if the twines which tie down the springs are broken it is more economical in the end to strip the entire chair and build the seat again.

Where the straightening up of the springs in the manner we have just indicated does not completely restore the contour of the seat it is possible to undo the covering at the back of the chair or at the front and by raising the stuffing material which has matted into position in the seat of the chair another layer of stuffing can be inserted beneath the original stuffing in such a way as to thicken the padding and restore the rounding appearance of the seat. See diagram Fig. 260.

While the repairing of cabinet-work does not lie strictly within the province of the upholsterer, there are many small repairs which he can very well make without having to wait until the cabinet-maker can be secured.

In Fig. 261 we show a very simple plan of gluing up loose joints without the aid of the cabinet-maker's cramp. Generous pads of paper are wrapped over the finished parts of the frame and a stout rope is tied so as to draw the loose joints together. By inserting a short stick between these ropes

and twisting them, a shrinkage is caused which will draw the joints tight while the glue is setting. All surplus glue must be wiped away as soon as the joints are closed and the chair is allowed to stand until the glue has thoroughly hardened.

It is a mistake to think that an excessive amount of glue will hold better than a thin coating. As a matter of fact the less glue that is used the better the joint will be but the woodwork should be accurately fitted so that a minimum quantity of glue is required.

Where these simple repairs are not sufficient, it is a mistake to go to the expense of reupholstering a piece before the cabinet parts have been thoroughly repaired because in most instances the frame will soon go to pieces and the upholstery will have to be done over again, whereas the proverbial stitch in time would have made unnecessary the second reupholstering.

It not infrequently happens that new chair frames and other pieces of furniture do not stand level on the floor, all of the legs not being the same length. This causes a rocking or teetering of the piece that is very annoying. By moving the piece about in different positions on a perfectly level floor it can readily be determined which legs are too short or too long. Where one leg is found to be longer than the other three, the easiest way to level would be to cut a piece off of the long leg so as to make all four legs equal. Where two legs are longer and the shape of the leg will not be spoiled by cutting the surplus off the bottom of them, it is also easier to level the chair by cutting, but in the event of one leg being shorter than the other three, where the difference is a very small fraction, it is sometimes easier, particularly where casters are used, to add the needed length by a pad under the caster. To determine how much to cut from the bottom of a chair or table leg, a very simple plan is illustrated in Fig. 262. Having found a level part of the floor four blocks of equal thickness are placed under the three shorter legs, then by placing the block beside the fourth leg the amount to be cut off is indicated by the height of the block. Where two of the legs need cutting the same plan is followed but it will, of course, be necessary to support the longer legs by wedges to prevent teetering while the measurements are being taken. The method is illustrated in Fig. 263.

The all-round upholsterer in a small town has to know a great deal more than is called for literally in the upholstery trade. He must know drapery principles*, window-shades, be familiar with cabinet-making, and be more or less proficient in the principles of furniture finishing. Simple cabinet repairs we have

*For the principles of drapery work and window-shades the reader is referred to the author's book on those subjects: "Cutting and Draping," Clifford & Lawton, publishers.

262

261

263

259A

259

259B

259C

259D

REPAIRING AND POLISHING

already covered. The matter of furniture finishing is, of course, a trade in itself and it would be impossible to condense all of the principles into a brief chapter. A few of the basic principles, however, can be given here and these the upholsterer will find it worth his while to know.

Practically all furniture wood is either stained or filled with a staining filler. Therefore, when new wood is joined to old finished wood, the new wood is always considerably lighter. To bring the new wood up to the color of the old, a staining filler is mixed up, using pigment to get the desired shade. Fillers are composed of a filling substance, a drier, an oil and a color. For filling substances there are several alternatives. Perhaps the cheapest and the easiest to procure for small jobs is corn-starch, being a very finely ground powder which is easily penetrated by the oil and the stain. Very finely calcined plaster-of-paris is also used, a quality known as dental plaster is best, and patent fillers are largely made of a compound of barytes, oil and color. The principles of mixing all of these various substances are about the same, so the following explanation with regard to corn-starch will be sufficient for all.

To a handful of corn-starch, for a small job, sufficient boiled linseed oil is added to make a thick, pasty mixture. The lumps must all be broken and the mixture stirred until the oil has penetrated the entire mass. While in this state, a pigment (dry paint) is added to color the mass to the desired shade of the woodwork to be finished. Allowance must always be made for the change of color that occurs in drying, the wet filler always being darker in shade than it will be when it is dried out. The pigment must be thoroughly mixed into the pasty mass, a little Japan dryer added and the mass then thinned to a thick, creamy consistency by the addition of turpentine. No rule can be defined as regards the quantities of the different substances to be used in the mixture, but a little practice and experiment will soon enable one to arrive at satisfactory results.

The filler is spread thickly with a coarse brush over all the surface of the furniture, allowed to dry to the condition where it will not wipe out of the pores of the wood and then rubbed off with a piece of coarse canvas, rubbing across the grain and being sure to remove all of the substances from the surface, it usually requiring two or three different cloths to accomplish this. As the purpose of the filler is literally to fill the interstices of the open grain up to the level of the wood, it will be seen that the rubbing must not defeat this purpose and care should be used accordingly.

After the filler has been allowed to dry thoroughly, a light coating of shellac is brushed on and this again allowed to dry thoroughly. The whole surface is next smoothed over with very fine sand-paper, no coarser than 0-0, from which the coarse particles have been

removed by rubbing two sheets together. Care must be taken not to cut through the shellac where there are sharp edges on the furniture, and no more rubbing should be given the surface than just sufficient to smooth any roughness that the shellac may have caused. The surface is then dusted off and for dull-finished furniture, a coating of wax applied. If a polish is required one or two coats of hard-oil finish or rubbing varnish will be necessary. After the hard-oil finish has been allowed to dry for at least a week in an even temperature, it may be rubbed down with a felt pad moistened in water and dipped in powdered pumice-stone, to cut down all irregularities of the surface, then with another felt pad, raw linseed oil and powdered rotten-stone, the surface can be polished to a lustrous, smooth appearance. These methods are only suggested for simple repairs but after one has had considerable experience and has acquired facility, it would not be difficult to finish entirely a new piece following the methods we have described.

For the cleaning up of furniture there are various polishes on the market which have more or less merit and are intended to obviate the necessity of mixing one's own polish. For those who prefer to mix their own, however, we give the following formulas which have been recommended by their users:

1. To a half pint of 98 per cent. alcohol, add one-quarter ounce each of resin and gum shellac. After the gums have been dissolved in the alcohol add a half pint of linseed oil, apply with a soft cloth and rub dry.
2. One and a-half ounces of alcohol, half an ounce of muriatic acid, eight ounces of linseed oil, and an ounce and a-half of butter of antimony; mix well together and add half a pint of best vinegar, apply same as above.
3. To one pint of linseed oil add two ounces spirits of camphor, half an ounce of spirits of hartshorn, one ounce of butter of antimony and four ounces of vinegar. This polish needs to be well shaken each time it is used. It is applied with cloths as directed above and must be well dried off.
4. A simple polish is made with a half a gill of vinegar, one gill spirits of wine and one drachm of linseed oil.

It will be noticed that many of these polishes are very similar, the difference in quantity of the various ingredients being the formulas preferred by different workmen. It should always be borne in mind that where there is a preponderance of alcohol there is a danger of cutting the original varnish unless the application is made very quickly and lightly. When a new lot of polish is mixed up it would always be well to try it on an unimportant piece of finished wood in order to determine just what strength it has. If after an application of the polish the varnish is tacky (sticky) to the touch there is too much alcohol and there should be added more oil and other ingredients until an application no longer softens the varnish.

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